The Paprec Group magazine for a greener planet

paprec mag no. 47
September 2021

FEATURE
Paprec continues its commitment to finding alternatives to landfills

REPORT
Big bag: a new solution for construction and demolition sites

SPONSORSHIP
Protecting and educating underprivileged children: a cause that is important to Paprec

STRATEGY

Paprec becomes a major player in energy recovery

PAPREC GROUP

An in-depth look at the heart of the material.
Aurélie Thomas is a chemical engineer and lab technician. Not in the pharmaceutical industry but at the France Plastiques Recyclage plant in Limay, France. Here she is shown in her laboratory next to her chromatograph. This machine was purchased just one year ago and can be used to precisely evaluate the quality of recycled plastic in only 24 hours.

“Alternatives to landfills will become the major new treatment facilities of the future.”

A closer look at energy recovery and our international activities!

STÉPHANE LETERRIER,
DEPUTY CEO, PAPREC GROUP
AND GENERAL MANAGER, COVED

Nearly three years after taking our first steps into operating household waste-to-energy plants, the group is accelerating its move into this strategic field with the purchase of CNIM O&M and TIRU, two companies that are specialised in this sector. Welcome to the teams in France, the United Kingdom, Poland, and Azerbaijan, which are joining the group!

Paprec is the leader in recycling and material recovery of waste from French companies and local communities as well as an expert in organic waste recovery. It is renowned throughout Europe and is the third largest French specialist in overall waste management, with an exceptional geographic reach and a very broad range of expertise.

At the dawn of an unprecedented movement in France to reduce landfill capacity, increase the general tax on polluting activities (TGAP) on landfill waste, and develop a new type of units designed for the energy consumption of solid recovered fuel, it was essential for us to strengthen our presence in this energy recovery loop, which is fully complementary to the material recovery (recycling) and organic waste recovery loops. We are now a major player in the field of waste treatment. We are able to implement alternatives to landfill disposal that will be the major new treatment facilities of tomorrow.

While continuing to accelerate in this sector, we are also boosting our international activities in three new countries with excellent prospects for growth. The family is growing.

Now more than ever, the group can look to the future with confidence and enthusiasm, backed by the trust it inspires in its clients and partners, its dynamic sales, its ability to integrate new companies, and the expertise and energy of its people.

We hope you enjoy reading this latest issue.

paprec mag no. 47

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top stories

FROM THE PAST QUARTER

CONTRACTS

Local authorities choose Paprec for sorting their selective collection waste

The group wins contracts for two new sorting centres, its 32nd and 33rd! The locally owned public companies Tri Val de Loir(e) and Tri Berry Nivernais have selected Paprec to design, create, operate, and maintain their new sorting facilities for selective collection waste. This centre is based in Touraine, France, and will manage the recyclable waste of the area's 900,000 inhabitants. It has a 53,000-tonne capacity and required a €40 million investment by the public company. The Tri Berry Nivernais sorting centre, which serves 500,000 local residents, will have a capacity of 30,000 tonnes. It is based in Bourges and represents a €25 million investment. It will enable compliance with stricter sorting and recycling requirements for all plastic packaging waste. The centre's design factored in the most recent changes in the types of household waste produced, i.e. fewer newspapers, flyers, and magazines, and more cardboard packaging!

With its 33 sorting centres in France, Paprec manages the selective collection waste of one quarter of all French residents.

PAPREC: FACTS AND FIGURES

12,500
employees

16 million
tonnes of recycled and recovered waste

€2 billion
in turnover by the end of 2021

280
plants and local offices

€2 billion
in industrial facility investments

FUNDING

Paprec raises €450 million in green bonds

Paprec mobilises €450 million in the form of green bonds. This is the group's fourth fundraiser through green bonds. In 2015, the French leader in recycling was the first "medium-sized company" to use this approach. This fundraiser, against a backdrop of strong business growth, both organic and external, allowed the group to continue to pursue its ambitions and post more than €2 billion in turnover in 2021. This financial operation was a resounding success: the financial markets offered up €2 billion in funding. ***"This enthusiasm shows the relevance of the group's business model and investors' confidence in our ability to continue to grow in the years to come"***, explained Charles-Antoine Blanc, CFO of Paprec.

COMPANY

Paprec creates an industrial energy production plant with Vicat

Paprec, the specialist in waste management, and Vicat, the specialist in construction materials, have jointly founded "ALTèreNATIVE CSR", based in the Bouches-du-Rhône department. This entity will be in charge of operating a plant producing fuel from non-recyclable waste from Paprec's sorting centres. This solid recovered fuel (SRF) is truly the fuel of the future and will replace the fossil fuels used in the local Vicat cement plant and in future local boilers.

Guy Sidos, CEO of the Vicat Group, and **Sébastien Petithuguenin,** General Manager of Paprec

INNOVATION

TIRU's Saint-Perdon plant wins an award from *L'Usine Nouvelle*

The organic waste recovery plant operated by TIRU in Saint-Perdon, France, received the 2021 environmental transition award from the editorial team at *L'Usine Nouvelle*. This new Paprec entity was recognised for its process for drying sorting residues implemented in its compost manufacturing plant. This waste used to be discarded as non-recyclable waste but is now transformed into solid recovered fuel that is used in cement plants as a substitute for fossil fuels.
The development of these technologies is essential in order to drastically limit the amount of waste sent to landfills by 2025, as required by the French energy transition law.

AWARD

Paprec's website wins an award!

The Paprec group won a Top Com d'Argent award last June for its new corporate website Paprec.com. The website was designed with the Parisian company Babel, and its quality won over the jury made up of marketing, communication, and HR professionals and experts. *"This is an outstanding award"*, emphasised Thibault Petithuguenin, Group Director of Communications. *"With this site we wanted to show what an industrial group looks like – one that is a leader in its business, with cutting-edge technology, and whose very purpose is to preserve the environment. We also wanted to give some background information on the entire world of recycling. A resounding success!"*

Thibault Petithuguenin, Communications Director at Paprec, and **Stéphanie Niox-Château,** Digital Consultant at Babel.

FLORENT MENEGAUX,
CEO OF MICHELIN

SHORT BIO

1962: Born 26 February in Issy-les-Moulineaux, France.

1986: Obtained a master's degree in finance, management, and economics from Université Paris-Dauphine.

1997: Joined the Michelin Group. Commercial Director for Truck Tyres in the United Kingdom and the Republic of Ireland.

2000: Sales Director for Truck Tyres Original Equipment and Replacement Markets for North America.

2008: Executive Vice President for the Passenger Car and Light Truck worldwide activities; member of the Group Executive Committee. He also oversees Michelin's Motorsports activities and Materials business.

2018: Managing General Partner of the Group.

2019: Chief Executive Officer of the Group.

"In 2050, 100% of our tyres will be produced from recycled or bio-based materials."

Drastic reduction in CO_2 emissions, recycling and systematic recovery of end-of-life tyres, and full-scale innovation to end our dependence on fossil fuels... Michelin's road map is as ambitious as its goals. By 2050, the group, which operates in 174 countries and employs 127,000 people, aims to achieve carbon neutrality and to ensure that 100% of its tyres are recycled. Florent Menegaux, CEO of Michelin, agreed to answer our questions.

Michelin has aimed for carbon neutrality by 2050. What has convinced you of the need to make the environment a core part of your strategy?

Florent Menegaux: The forms of economic growth that we have known until now are no longer sustainable. We emit too much CO_2, our natural resources are running out, and we are seeing a misalignment of life cycles in which we consume in just a few moments what took tens of thousands of years to make. In light of this fact, I believe that companies that do not re-think their business practices are destined to disappear. Michelin is a company that has existed for more than 130 years. To make sure that it has strong outlook for the coming century, we needed to make major changes. That is the entire driving factor behind Michelin's strategy. We want to generate sustainable growth by constantly seeking the best possible balance between People, Profits, and Planet. By continuing to pursue this transformation, Michelin will truly be "All Sustainable".

How can one measure the environmental impact of a company like Michelin?

F. M.: We started by creating our own indicator: The i-MEP (industrial – Michelin Environmental Performance), which is calculated from five key data points: energy consumption, CO_2 emissions, consumption of organic solvents, water abstraction and water stress, and the amount of waste generated. This indicator is generated from concrete information and allows for effective oversight. Next, we decided to apply a cost to CO_2. I believe this is the only relevant way, on a planetary level, to measure and place a value on an activity's impact on the environment. This carbon price is now being applied to all our logistics projects. Michelin, of course, supports the implementation of carbon pricing around the world, because it is the only way to have a relevant and fair evaluation of companies' impact on the planet. •••

"We decided to apply a cost to CO_2. I believe this is the only relevant way to measure and place a value on an activity's impact on the environment."

live coverage

FLORENT MENEGAUX, CEO OF MICHELIN

• • • Finally, for the first time this year, we are tallying the balance of our positive and negative externalities and giving it a financial cost. The goal there is, like elsewhere, to have a concrete vision via a clear, controllable indicator.

You went so far as to incorporate these externalities into your financial statements before presenting them to the markets?

F. M.: Absolutely. We have factored this data into the presentation of our results to our stakeholders in the financial world. We have evaluated the total cost of our negative externalities at around €325 million. Our mission is, of course, to reduce this cost as much as possible.

While Michelin is a pioneer in this approach right now, I am convinced that all companies will switch to it quickly. Because we are collectively engaged in a race against the consequences of out-of-control climate change. Everyone knows it. Starting now and valuing negative externalities now is essential to empower ourselves to act.

Europe seems to be ahead of the curve on this issue. The United States under President Biden is moving faster, as is China, where pollution in certain regions has caused reactions that are unexpected in both their scope and their intensity in the population.

How does Michelin intend to reach its goal of having 100% recycled and recyclable tyres?

F. M.: This is certainly a crucial topic for a group like Michelin, which produces almost 200 million tyres per year. We are aiming to have 100% of end-of-life tyres be collected and recycled by 2050 through increased cooperation with other manufacturers and regional stakeholders. Our competitors share this goal. We are already working together on this issue through several regional associations such as ETRMA (European Tyre & Rubber Manufacturers Association).

Ensuring that 100% of our tyres are collected and recycled is an ambitious but realistic objective. In 2019, Deloitte carried out a study on this issue in 45 countries. This study showed that 88% of end-of-life tyres are collected. We still have much to do but we are not starting from scratch!

“Paprec innovates in order to be increasingly competitive in its core business. It is a preferred partner for Michelin! ”

What portion of an end-of-life tyre is recyclable? How are these tyres recovered today?

F. M.: A tyre is a combination of 200 different components, but it is still 70% synthetic rubber, a product derived from petroleum. Today we estimate that 50% of the world’s recovered end-of-life tyres are used for energy production and the other 50% are used for material recovery.

Our long-term goal is to focus on material recovery as much as possible.

To achieve this goal, we are working on collective initiatives via multilateral organisations like ETRMA and the Tire Industry Project, as well as individual initiatives.

For example, Michelin is developing tyres that incorporate styrene from recycled yoghurt containers. We also include orange and grapefruit peels in our products. Today, we use 72% fossil materials and 28% recycled or bio-based materials. We will move to 100% by 2050.

Michelin is also partnering with other initiatives. Such as Lehigh, which transforms tyres into micro-powders used to produce asphalt. Enviro is able to extract certain materials like carbon black, pyrolysis oil, and steel. Blackcycle uses a technology that can transform used tyres into raw materials for making new tyres.

What are the different ways the materials from recycled tyres can be used?

F. M.: In the tyre industries, of course, but also other companies such as those that make road mixes. Because the rubber improves abrasion resistance, helps water drain better, and also reduces noise. This type of material is also found in reinforced concrete for the construction industry and in the automotive industry to make carpets, gaskets, and more.

Finally, I’d like to say a word about Paprec, which recently won two new large bids for recycling the waste from Michelin plants in France.

F. M. : I would like to congratulate Paprec, which retained the Western France contract and won the Eastern France contract. It will be in charge of waste treatment for 10 Michelin sites throughout France. Our teams appreciate the quality of the services provided by Paprec as well as its skill in adapting to the specific needs of our businesses. Your teams are very proactive and attentive to our requirements. Your proposals for continuous progress, your support, and the traceability made possible by your digital solutions were what won us over. Paprec innovates in order to be increasingly competitive in its core business. It is a preferred partner for Michelin! •

Paprec becomes a major player in energy recovery

Paprec's expertise in recycling is the reason it was founded and what helped it grow until it became the French leader in this field. Giving value to waste by transforming it into new raw materials is indeed the group's priority. In order to have full control of all the waste recovery loops, the group then had to develop its expertise in energy production. We have been working on this aim for the past ten years (methanisation, transformation of biogases from landfill waste, etc.), but now the group is moving into high gear. This year it is acquiring two historic companies specialised in recovering energy from waste, making it the third largest French company in this field.

Capacity:
4
million tonnes of waste

The quality of the raw materials from Paprec's recycling operations is praised in the 65 countries where they are used. This expertise is actually what allowed it to compete in the major league. *"But to become the national champion of the circular economy, we need to be active in the three recovery loops. Recycling, or the material recovery loop, the energy recovery loop, and the organic recovery loop, i.e. a return to the Earth"*, noted Jean-Luc Petithuguenin, CEO and Founder of the Paprec Group. In this area, Paprec is aligned with the waste management priorities set out in European legislation, with a major aim of drastically limiting the amount of waste sent to landfills. By experimenting with high-tech processes, its trademark, Paprec was already active to a certain extent in energy recovery. In Nantes and Toulouse, the group had designed two plants for producing solid recovered fuel from non-recyclable waste. This fuel is used in place of coal for industrial boilers. Its landfill in Saint-Florentin created the world's first plant where biomethane from landfill waste is fed directly into the natural gas grid. In addition, all of the group's non-hazardous waste storage facilities generate heat and electricity from this same biogas. Finally, since 2018, the group has managed three waste-to-energy plants (incinerators).

24 waste-to-energy plants
1,500 employees
4 countries

Two fantastic acquisition opportunities

But we had to take things up a notch. *"Especially since Veolia and Suez together own two thirds of France's waste-to-energy plants. It was very important for us to gain a certain independence in this major area of waste management"*, commented Stéphane Leterrier. •••

The generated gas is neutralised and transformed into inert solid residues used to backfill old salt mines.

The by-products are called waste slag. They are used as alternative materials for road building.

The 240,000 tonnes of waste are transformed into electricity at TIRU's Calce plant in the French Pyrenees that is used for swimming pools, schools, and a hospital through a district heating network.

••• The teams therefore kept their ears to the ground for any new opportunities. And the results have exceeded every expectation. In the span of only two weeks, two showpieces of French industry, experts in the management of waste-to-energy plants, were looking for buyers. First CNIM's Opération & Maintenance division, and then Dalkia Wastenergy, which was still known in the industry by its historic name "TIRU".

"There are so few players in this business. So, when fantastic companies like CNIM's O&M division or TIRU are available, you have to move fast!" confirmed Stéphane Leterrier. *"In the group, we like to enter a business through the very highest level of technology, and that is what these companies allow us to do. CNIM built a large proportion of these plants in Europe. TIRU holds a patent for a rocking furnace that is a major development in burgeoning CSR boiler technology"*, noted the Deputy CEO of Paprec.

Technological leaders in their field

The CNIM Group (Constructions Navales et Industrielles de la Méditerranée) was founded in 1856 in Seyne-sur-Mer. With 2,800 employees, this company is the largest employer in the Var department. The company stands out for its expertise in the environment, energy, defence, and high technology. It has earned a reputation for industrial excellence and works for Ariane Group, the nuclear research programme ITER, and in renewable energy and weapons systems. Paprec acquired its Operation & Maintenance division, which is specialised in operating waste-to-energy plants.

TIRU (Traitement Industriel des Résidus Urbains) is younger, but still nearly one hundred years old. It was created in 1922 by the City of Paris. In its early years, it managed four incineration plants in the Paris region (Saint-Ouen, Ivry-sur-Seine, Issy-les-Moulineaux, and Romainville). When EDF was created in 1946 under the French nationalisation law, TIRU became a part of its Production •••

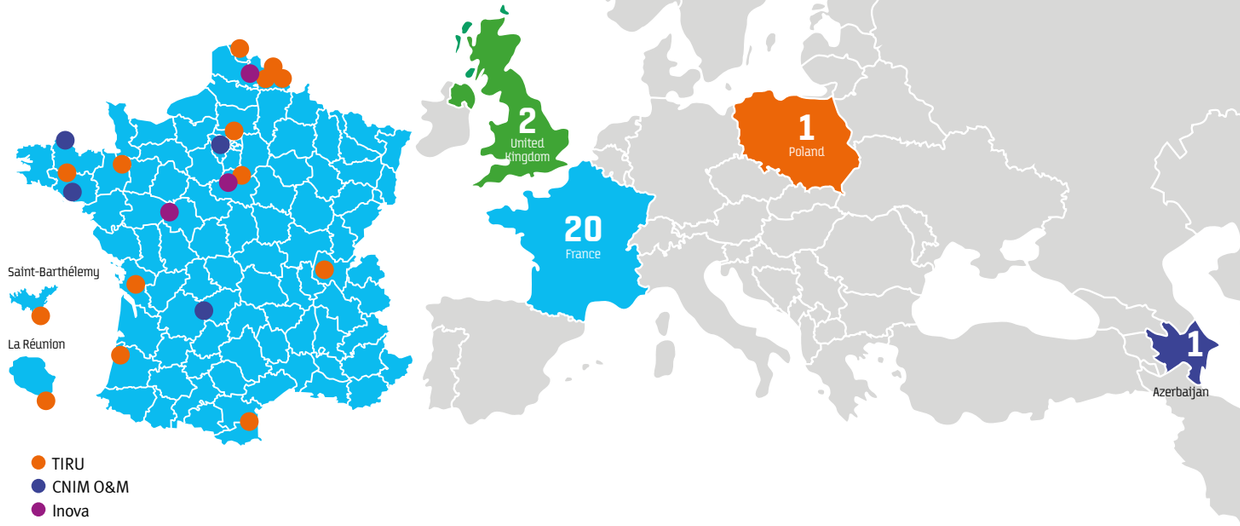
JEAN-LUC PETITHUGUENIN,
CEO AND FOUNDER OF PAPREC

"CNIM O&M and TIRU are showpieces of French industry."

What made it possible for Paprec to integrate these two companies?
Both of these companies – the CNIM subsidiary (CNIM Opération & Maintenance) and TIRU – are showpieces of French industry. The sellers (including EDF, so the French state!) were very concerned about the future of these companies and their employees. We are a family-owned group, with a long-term vision and a history of successful external growth.

You will now be operating plants in other countries. What are the group's international ambitions?
International growth is not an obsession: our goal is not to plant Paprec flags in all four corners of the Earth just for fun. It depends on the country's prospects and its fit with our business! We already sell our materials in 65 countries. When we set up shop abroad, we need to work under good conditions and with the ability to work toward ambitious industrial goals. That is what we have been doing in Switzerland for the past decade, for example. That is why we are very pleased to be able to expand into the United Kingdom, Poland, and Azerbaijan, which are three very different countries, but all of which have so much potential.

Paprec now manages 24 waste-to-energy and organic waste recovery plants



The site in Perpignan has a line for baling waste stored in pits to ensure continuity of service during scheduled shutdowns.

The Calce site also houses a centre for sorting selective collection waste. Non-recyclable waste is sent to the waste-to-energy plant.

The plant operates 24 hours a day, with over 97% availability. Close monitoring is required to ensure this level of efficiency!

Paprec will manage a waste-to-energy plant in the Baku region in Azerbaijan. This plant is the country's largest and has an annual capacity of 500,000 tonnes.

Paprec, France's third largest industrial player in energy recovery

Veolia and Suez between them own two thirds of France's waste-to-energy plants.

••• and Transport department. In 2016, Dalkia, an EDF subsidiary specialised in heat networks, acquired 75% of its capital, then all of it in 2018. The group then changed its name to Dalkia Wastenergy. It is specialised in designing and operating waste-to-energy and biological waste recovery plants.

A "Paprec Energies" division

These two entities will be grouped under a new division: "Paprec Energies". It will have 1,500 employees in 24 waste-to-energy plants, including four outside of continental France. While the group is extremely active internationally through the sale of its raw materials, its entry into plant management represents a new chapter in its expansion. CNIM O&M, for example, manages the largest incinerator in Europe. It has a 500,000-tonne capacity and is located in Baku, Azerbaijan. TIRU will develop a plant in Poland to produce solid recovered fuel, which will replace the coal that is still used widely in the country. Finally, between them, these companies operate six waste-to-energy plants in the United Kingdom.

Expansion through winning bids

For its future growth in this major energy recovery market, the group intends to focus on renewing its current contracts during any future calls for tender. There are very few new incinerators being built in France, but the existing plants are publicly operated or delegated public services and their management contracts are regularly opened up for bidding. Half of the management contracts for these plants will be up for bidding in the next five or six years. *"We intend to be highly innovative to win over local authorities and communities by constantly focusing on our very technological and high-end approach"*, concluded Stéphane Leterrier, who will head this new division within the group. •

The plant operated by TIRU in Saint-Perdon received the 2021 environmental transition award from the editorial team at *L'Usine Nouvelle* for its process for using solar energy to produce solid recovered fuel (SRF) from household waste.

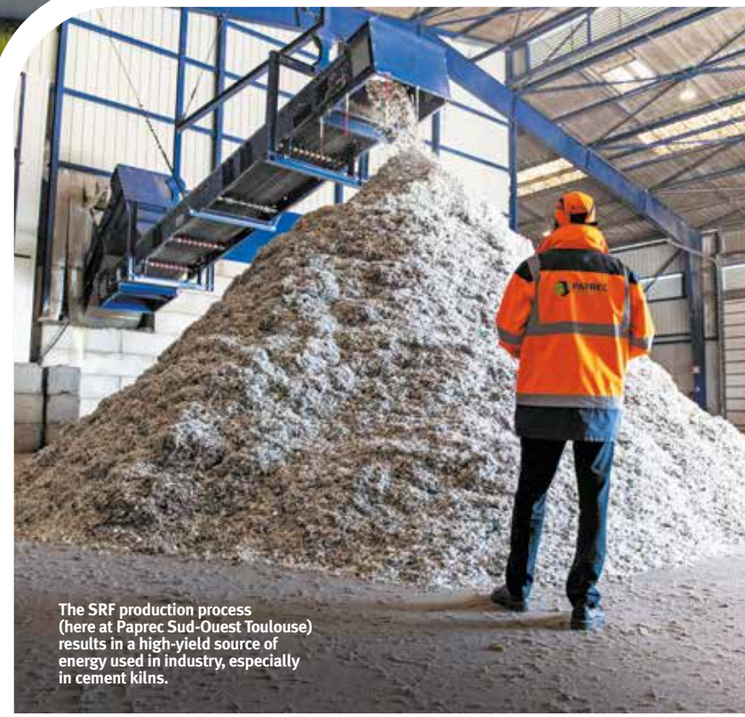
The waste-to-energy plant in Pluzunet, France, has an annual capacity of nearly 60,000 tonnes.

300 million euros in turnover

At the Ikos Environnement site in Fresnoy-Folny, the biogas plant is used to recover waste in two different ways, creating both energy (heat and electricity) and digestate, which can be used as a fertiliser by farmers.

Paprec continues its commitment to finding alternatives to landfills

Waste storage facilities will need to evolve and adapt to changing regulatory requirements. Current legislation reduces the amount of landfill space and increases the cost of disposing waste in landfills. Paprec, the French leader in recycling, assists local communities in finding alternative solutions for recovering their final waste, in particular through the production of solid recovered fuel (SRF) and biogas production through anaerobic digestion.



The SRF production process (here at Paprec Sud-Ouest Toulouse) results in a high-yield source of energy used in industry, especially in cement kilns.

Producing solid recovered fuel is an excellent way to recover the non-recyclable waste that is left over after sorting selective collection waste, bulky waste, and ordinary industrial waste.

"Governing means being able to anticipate." These words of wisdom perfectly reflect the thoughts of the elected representatives of the Syndicat des Portes de Provence (SYPP) union in the Montélimar region *(see article on the following pages)*. Since 2010, they have been making plans to acquire equipment for recovering their final waste. The future would vindicate their efforts: five years later, France passed its law on the energy transition for green growth. This law requires a 50% reduction in the amount of waste sent to landfills by 2025. This means France will need to reduce its landfill waste from 18 to 9 million tons per year. To reach this goal, lawmakers have implemented a progressive increase in the general tax on polluting activities as well as a drastic decrease in the storage capacity of non-hazardous waste storage facilities.

The evolving face of non-hazardous waste storage facilities

Faced with changing regulations, landfills have no choice but to adapt and reinvent themselves. They need to diversify and increasingly transition into sorting centres. This transformation was launched two years ago in Paprec's 17 non-hazardous waste storage facilities. The goal is to streamline storage areas and incoming streams and recycle and recover even more waste including household waste, non-recyclable waste, and bulky waste. As these sites diversify, they will be developing their waste recovery business lines and using high-performance industrial facilities such as solid recovered fuel (SRF) production lines, biogas plants, and biowaste depackaging and separation systems.

Future SYPROVAL plant for processing final waste. Commissioning is scheduled for July 2023.

Paprec opened its first SRF production line in 2011 at the Bruguières site near Toulouse.

Paprec's expertise in SRF

The group took its first steps into the production of SRF in 2011 when it opened its first dedicated sorting centre at the Bruguières site near Toulouse. This fuel is produced from the non-recyclable waste left over after sorting selective collection waste, bulky waste, and ordinary industrial waste. This process produces flakes that are used as a high-energy fuel by industrial companies, in particular cement manufacturers, which use them as fuel for their very high temperature furnaces. SRF production is a virtuous process that can recover 98% of the energy from waste while also avoiding the use of fossil fuels like fuel oil or natural gas.

Paprec has successfully developed this business line over the past ten years. Each year it produces 100,000 tonnes of SRF •••

100,000 tonnes of SRF produced per year by Paprec

A Paprec plant for Syndicat des Portes de Provence (SYPP)

In March 2020, the elected representatives of the SYPP union chose to award a public service contract to Paprec for the design, construction, and operation of a final waste treatment plant.

This ultra-modern plant is known as SYPROVAL and will be able to process 110,000 tonnes of waste per year, including household waste, bulky waste, non-recyclable waste left over from the sorting of selective collection waste, and ordinary industrial waste.

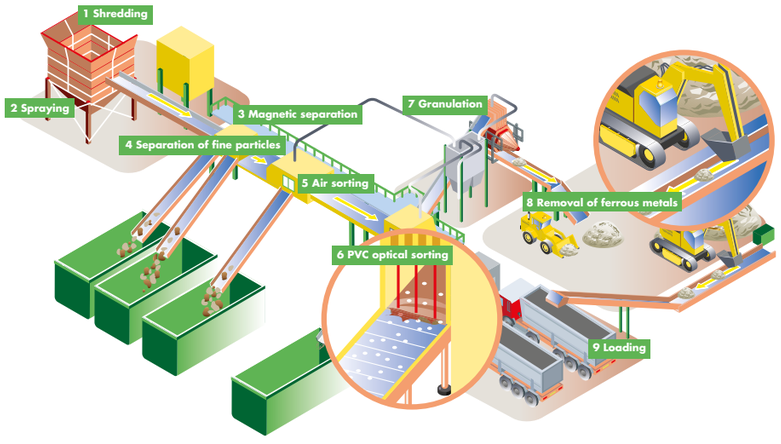
50% of this waste is recovered through:

- material recovery (sorting of metals, fibrous materials, and plastics);
- energy recovery through SRF production;
- a reduction in the residual volume of waste by bio-drying the organic fraction of waste.

This industrial facility required an investment of €41 million, funded primarily by the local government. After the end of the public consultation phase and once the prefectoral permit is obtained (expected in November 2021), work should begin in March 2022 and last approximately 16 months. Commissioning is scheduled for July 2023.

The plant will also include a room with educational materials and a guided pathway to allow visitors to see the entire process from start to finish.

The production of SRF



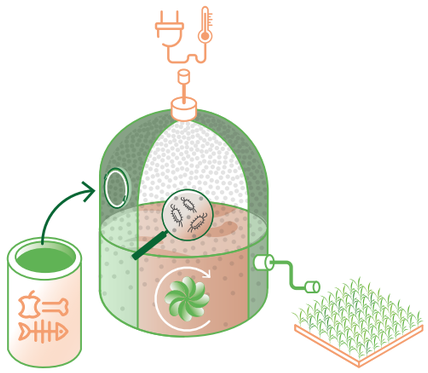
Once it is collected, the waste is recycled during the first treatment phase then sent to our solid recovered fuel sorting lines. The waste undergoes several different steps to obtain this new energy source:

- Shredding;
- Spraying to eliminate dust;
- Separation and sorting by category (metal, PVC, etc.);
- Removal of ferrous metals and pelleting.

The SRF is then sent to be used as an alternative fuel for energy-intensive facilities such as cement plants.

Methanisation: an opportunity for the world of agriculture

Methanisation, or anaerobic digestion, is a process by which bacteria break down biodegradable material in the absence of oxygen, like in a stomach. That is why it is extremely important to carefully select the inputs used to produce a high-quality digestate.
This odourless digestate is used by local farmers as fertiliser under the land application plan.
Anaerobic digestion is used to recover biowaste in two ways: in addition to digestate, it also produces a biogas that, once its CO_2 has been removed, can be fed into the natural gas grid or produce green energy through engines or turbines.



At Paprec's non-hazardous waste storage facilities, the biogas produced from the stored final waste is captured and injected into the grid where it is used to produce electricity and heat.

Before biowaste is placed in the biogas plant, it is removed from its packaging to extract the organic matter.

Biogas plant operated by Ikos Environnement in Fresnoy-Folny, France.

13,201 MWh of biomethane fed into the grid every year

> **"At the moment, heating with SRF sometimes costs more than heating with fossil fuels"**
>
> **STÉPHANE LETERRIER,**
> DEPUTY CEO OF THE PAPREC GROUP

••• at its different waste-to-energy plants in Bruguières, Chanceaux-près-Loches, Fresnoy-Folny, and Nantes. It will soon be operating a new plant in the Drôme department for SYPP *(see article on the following pages)*.
Its expertise in this energy recovery process is the result of significant investments in its production facilities. But this business could not truly reach its full potential without financial support from the French state to find sustainable uses for this energy: *"At the moment, heating with SRF sometimes costs more than heating with fossil fuels"*, explained Stéphane Leterrier, Deputy CEO of Paprec Group.

Recovering energy from organic waste through biogas plants

Methanisation, or anaerobic digestion, is another solution of the future! Waste contains organic matter that produces methane as it decomposes. This biogas is captured, compressed, and then fed back into the natural gas grid (nearly 13,200 MWh per year). It can also be used in engines to produce electricity and heat. Paprec owns one biogas plant, known as "Capik", at the Fresnoy-Folny site. TIRU and Coved have also built several of these plants for local authorities. The group has also installed equipment to produce energy from methane at several of its sites in Bimont, Châtillon-sur-Indre, Montmirail, and Villenue. The group has bid on several contracts for the design and construction of biogas plants to •••

••• produce methane from biowaste: the SM4 plant in eastern France and the major Syctom project at the inland port in Gennevilliers.
Several categories of organic waste are used in these biogas plants, including unsold supermarket waste and agri-food waste. Paprec has the expertise and technology to sort and prepare this waste before it is added to the anaerobic digester. Packaged waste must be depackaged to separate the organic waste from its container. Paprec is investing in these depackaging solutions at its sites in Fresnoy-Folny, Brive-la-Gaillarde, and Chanceaux-près-Loches.

The specific case of biowaste

Biowaste represents 30 to 40% of all waste produced in France. Under the 2020 law to fight waste and promote a circular economy, large producers must sort this biowaste at the source. Starting in 2024, households and all companies must do the same. Local communities are in charge of collecting and recovering the biowaste produced by households.
Biowaste is recovered through methane production or by being transformed into compost to be used as fertiliser for crops. The group already collects biowaste for several cities, including Brive-la-Gaillarde, Lorient, Pau, and Les Pays de Vilaine in Brittany. It also owns a dozen composting facilities located in Chanceaux-près-Loches, Cuers, Fresnoy-Folny, and Paprec Agro in Saint-Paul-la-Roche. The latter site received a sustainable development award from the European Commission for its agro-forestry project. •

ANTOINE FUMAT,
GENERAL MANAGER OF SERVICES
SYNDICAT DES PORTES
DE PROVENCE (SYPP)

What does this project mean for your region?
This project is inevitably one of the most important for our region from a technical and financial standpoint. It is a culmination of more than six years of discussions and studies to secure the local authorities' commitment to finding alternatives to landfills. It will also allow us to accelerate our ambitions to increase the amount of waste recovered. This project is therefore a perfect complement to our main goals of reducing and recycling or recovering waste and fits in perfectly with the changing regulations in this field.

What are Paprec's strengths that tipped the balance in its favour?
The Paprec Group, through its local subsidiary Coved Environnement, has a long history as a service provider in our area. Its winning bid contained a proposal that met our needs. The project was flexible enough to anticipate the future, compatible with our environmental requirements, and creates new local jobs that cannot be relocated.

What were your interactions with Paprec like on this project?
We work together intelligently, with regular discussions that are very constructive. This allows us to track the progress of the project based on the defined timetable.

Management of final waste: several regulatory changes

15 July 1975
A Minister for the Environment is appointed for the very first time in France. **The first French law on waste disposal and recovery of materials is passed.** It lays down requirements on planning for the disposal of household and industrial waste.

19 July 1992
The law establishes the principle of proximity, recycling, and the elimination of uncontrolled landfills from 2002. Only final waste storage centres are authorised.

17 August 2015
The French law on the ecological transition for green growth. One of its goals is to reduce the amount of waste sent to landfills by 50% by 2025. To reach this goal, storage capacities will be halved (from 18 to 9 million tonnes/year), the general tax on polluting activities will be raised progressively, and regions will be responsible for waste disposal planning.

10 February 2020
Law on preventing waste and to promote the circular economy. It adds a paragraph to the French Environmental Code specifying that local authorities will only be able to store 10% of their waste.

65,125 MWh of green electricity produced per year by Paprec

The non-hazardous waste storage facility in Villenue has storage areas and a biogas plant that recovers final waste.

report

AN IN-DEPTH LOOK AT THE HEART OF OUR BUSINESSES

Timing constraints: waste disposal vehicles are only allowed to load during a two-hour period between 6 and 8 a.m. As soon as drivers arrive, they must start collecting the waste immediately and finish within half an hour.

Four lorries were purchased for these specific services. These 26-tonne Amplirolls are equipped with gripping systems designed for collecting these specific containers.

Big Bag a new solution for work sites

For the past two years, the Group has developed a big bag collection and recycling solution for rubble and other waste from zones located in high-density areas or for low-volume loads.

6 a.m. Paris begins to awaken. In the heart of the city, Paprec bags are lined up in a row on the ground in front of a department store. A lorry stops and needs to load them all within half an hour. By the start of rush hour, the road needs to be turned back over to the mass of commuters that will be travelling through this neighbourhood in cars, on motorcycles or scooters, or on foot. And the one cubic metre bags will continue on their way to one of the Group's two sites in the Paris area for construction and demolition waste: Wissous in the Essonne department and Gennevilliers in the Hauts-de-Seine department. Once there, the materials will be sorted and then recycled or recovered. •••

••• *"We provide a comprehensive service: we supply these one cubic metre containers that can hold up to 1.5 tonnes of rubble, we collect them, and then we transport them in specialised trucks before recycling or recovering the materials"*, explained Sébastien Métayer, the sales representative in charge of this "big bag" solution. Four lorries were purchased: 26-tonne Amplirolls with gripping systems designed for collecting these specific containers. What made you decide to offer this service? In dense urban areas, it is nearly impossible to find the room for even one skip, let alone multiple ones. But current laws are placing increasing pressure on the construction industry to sort waste at its source, i.e. directly on-site.

"*This service is also ideal for small volumes of waste, because we use containers for plastic and cardboard that do not take up much space"*, noted Sébastien Métayer. Paprec's expertise also allows for recovering as much downstream waste as possible, and ensures the traceability of the waste once it is removed from a site. Overall, though, *"90% of our business at this time is with our major clients who have large volumes of waste to process"*, stated Sébastien Métayer.

Back to the centre of Paris. The sun is rising and the day begins for the city's residents. The work day is ending for the teams at GMT Gazzola Maçonnerie Traditionnelle, who have worked all night to rebuild an escalator for a department store. "*Even at the height of the Covid lockdown, the managers wanted to have the option of keeping the department store open during the day and avoid any intermingling of different groups of people, so we decided to carry out this work at night,"* confirmed Sébastien Fernandes, the site supervisor for this family-owned company with 80 employees. Over two months of activity, the site produced 180 tonnes of rubble and 100 tonnes of ordinary industrial waste, enough to fill 280 big bags. •

Big bags can also be used to sort waste directly at the construction site and therefore to remove smaller volumes of plastic or cardboard waste.

One cubic metre can hold up to 1.5 tonnes of rubble

SÉBASTIEN FERNANDES,
SITE SUPERVISOR AT GMT GAZZOLA MAÇONNERIE TRADITIONNELLE

"For a long time, we took care of the logistics of waste disposal ourselves with our crane lorries delivering the materials. But we decided to outsource this activity to improve our efficiency. In the beginning we worked with collection specialists, but we wanted to be able to recover as much waste as possible so we decided to work with Paprec. The Group has complied with very strict limits on waste pick-up imposed by the client and the city. Everything needed to disappear within only two hours, between 6 and 8 a.m. Paprec handles everything from collecting to recycling while ensuring waste traceability!"

Drivers plan their route to collect containers from several sites in order to fill up the lorry and optimise logistics processes.

The contents of one cubic metre, which can hold up to 1.5 tonnes of rubble, are emptied at the site. The waste will be sorted and recycled or recovered.

sponsorship

Protecting and educating underprivileged children: **a cause that is important to Paprec**

Protecting and educating the most vulnerable children from birth to adulthood is the main purpose of the Asmae association created by Sister Emmanuelle. Take a closer look at this organisation that is sponsored by Paprec Group with Adrien Sallez, Managing Director of Asmae.

"Young people are astounding when they are motivated", Sister Emmanuelle used to say. When she learned about the horrendous living conditions of Cairo's "rag-pickers", who made a living only through their informal collection of waste, she decided to live among them and offer her help. Through her efforts, this community living among trash heaps began gaining access to education and sanitation. Over time, schools, homes, a dispensary, a maternity hospital, and even a compost plant were built. Sister Emmanuelle decided to create Asmae in 1980 to expand her initiative. What is the mission of this secular, independent association? To bring dignity to the most underprivileged people and defend the fundamental rights of children. *"This project is more relevant than ever, when 385 million children around the world are living in extreme poverty"*, explained Adrien Sallez, Managing Director of the association.

Taking action and raising awareness

To bring this mission to life, Asmae provides support to those responsible for these children, including parents, local associations, and public authorities. *"In the five countries in which we are active, i.e. the Philippines, Lebanon, Madagascar, Burkina Faso, and of course Egypt, our historic commitment and objective has been to help local stakeholders implement their initiatives in support of impoverished children."* This approach makes it possible to develop systems for caring for and educating these children by strengthening capacities in the field. The goal is to have a long-lasting, comprehensive impact rather than solving one problem at a time.
For example, in Lebanon Asmae helps children who are refugees of the war in Syria or victims of the explosions in Beirut's port. *"They have witnessed extreme violence and suffer from post-traumatic stress with symptoms including anxiety and depression. In partnership with local associations, we offer them a pathway for rebuilding their lives, with psychological and social support and access to education."*
In the Philippines, the association also actively supports children and family living in the streets of Manilla through various initiatives. More specifically, Paprec's support was decisive in being able to launch one of these programmes: *"53% of disabled children do not have access to public education in the Philippines, even though they need special care and a proper education. Our project aims to design an inclusive educational curriculum for fifty of these children between the ages of 3 and 8, with their families' involvement"*. Asmae and Paprec are investing in these children's future through education, a powerful lever for development and an essential part of creating a peaceful future.

Keeping the legacy of the "Little Sister of the Poor" alive

Sister Emmanuelle was an icon in France and a very popular figure in the media. *"At a time when NGOs were still very rare, she managed to mobilise public opinion around the plight of the most impoverished individuals. Her efforts made our initiative more professional, meaning that we can now help 50,000 beneficiaries every year. But funding from public authorities, private individuals, and companies like Paprec is as essential as ever to our association"*, concluded Adrien Sallez. The Paprec Group believes that ensuring a better future for the world's youth is a meaningful and noble cause for Paprec Group. •

Paprec and Asmae: the story of a meeting of minds

In the beginning, one moment was decisive to the partnership between the association and our group: when Jean-Luc Petithuguenin, CEO and Founder of Paprec, met Jean-François Roubaud, former chairman of CGPME and Chairman of the Asmae Support Committee. *"This association carries out a variety of initiatives to prevent social exclusion. One of these is the La Chrysalide establishment, which assists disadvantaged women with young children. Asmae provides support for rebuilding their personal, family, and social lives. As a father myself, I am especially concerned about the plight of underprivileged children. That is why I believe it is crucial to support this programme to help disadvantaged mothers get back on their feet"*, explained Jean-François Roubaud.
It was a natural part of Paprec's sponsorship programme to support an association that seeks to reintegrate young people who were living off what they salvaged from a landfill in Egypt. *"Furthermore, I think very highly of Jean-François Roubaud, whom I knew well when my group was smaller!"* noted Jean-Luc Petithuguenin, CEO and Founder of Paprec Group.

IN FRANCE, TODAY'S WASTE CREATES TOMORROW'S JOBS.

Recycling and recovery of waste into raw materials represent ideal solutions to the environmental challenges of the 21st century. And France is one of the world's most successful countries in the field. This sector requires considerable investment in high-tech industrial equipment.

With 10,000 employees in 220 sites around France, the Paprec Group has been at the heart of the circular economy for 25 years.
As France's leader in recycling, it plays an important role in the country's progress in this field. Paprec has expertise in all areas of the sector, from waste collection to recovery.

The company has created 2,000 skilled jobs over the past three years.

Photo credits: Arthur Joncour / Benjamin Sellier / Getty images

Les Trophées des INDUSTRIELS de l'année
L'USINE NOUVELLE EVENTS

Jean-Luc Petithuguenin, CEO and Founder of the Paprec Group, was named Industrialist of the Year 2020 on 4 November.

GROUPE PAPREC

For a greener planet and a more inclusive society