



INNOVATION & TECHNOLOGY

2021 Sustainability Plans



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Legal Notice

This Sustainability Plan includes a set of actions which, in whole or in part, go beyond what is required by law and are aimed to contribute to sustainable development. Participating companies of Repsol Group have the firm intention to undertake and fulfill them. However, they reserve the right to modify, postpone or cancel their implementation without incurring liability, but undertake to publicly justify these possible cases.

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1 Our visión of sustainability

At Repsol, we contribute to sustainable development by seeking to satisfy the growing demand for energy, which is essential for the fulfillment of people's fundamental rights, and by creating value in both the short and long term.

We maximize our positive impact and minimize our negative impact on society and the environment throughout our value chain by acting ethically and transparently. In doing so, we seek to comply not only with the regulations in force but also with the main international standards.

Under these premises, our sustainability model incorporates ethical, environmental, and social considerations into our decision-making process, based on dialogue with stakeholders. We do this every year, creating initiatives that address the concerns of these stakeholders. This is how the **Sustainability Plans** — action plans that are available to the public and created on an annual basis — are born. The **Global Sustainability Plan** is the roadmap forming the basis for deployment of **Local Plans**. The plans also contain commitments in relation to the local context.

The **Sustainability Plans** are put together on the basis of the **six axes** of Repsol's Sustainability Model.



2 Innovation & Technology

AT REPSOL, WE CONTRIBUTE TO SUSTAINABLE DEVELOPMENT

Advancing in the decarbonization of processes and products and in Sustainability is a key objective in the future strategy of our industry. For this reason, at Repsol, we are strongly committed to the decarbonisation of our industrial and transport production, counting on a strong investment in R&D&I at our research center (Repsol Technology Lab).

Also since its creation in 2017, Repsol's Digitalization Program has maintained a firm commitment to Sustainability. On a transversal basis, this program is contributing to the digital transformation of Repsol's business units, obtaining impacts throughout the entire value chain.

Repsol Technology Lab promotes open innovation, that is, collaboration with the innovative ecosystem by building a work environment capable of accelerating the full deployment time of disruptive technological products. This collaboration model is essential to obtain successful results and build more efficient and sustainable energy systems.

As an example of open innovation, Repsol has an investment fund that is intended to acquire stakes in start-ups that offer solutions in three areas of action: decarbonisation and circular economy, advanced mobility and renewables, and digital technology and asset optimization.

The different Sustainability Plans include a commitment to the following actions, in step with the lines of work that Repsol has set on this axis of the sustainability.

The **actions** that make up in **Innovation & Technology** issues in the **Sustainability Plans** help support the United Nations' **2030 Agenda** by addressing the following Sustainable Development Goals (SDG):



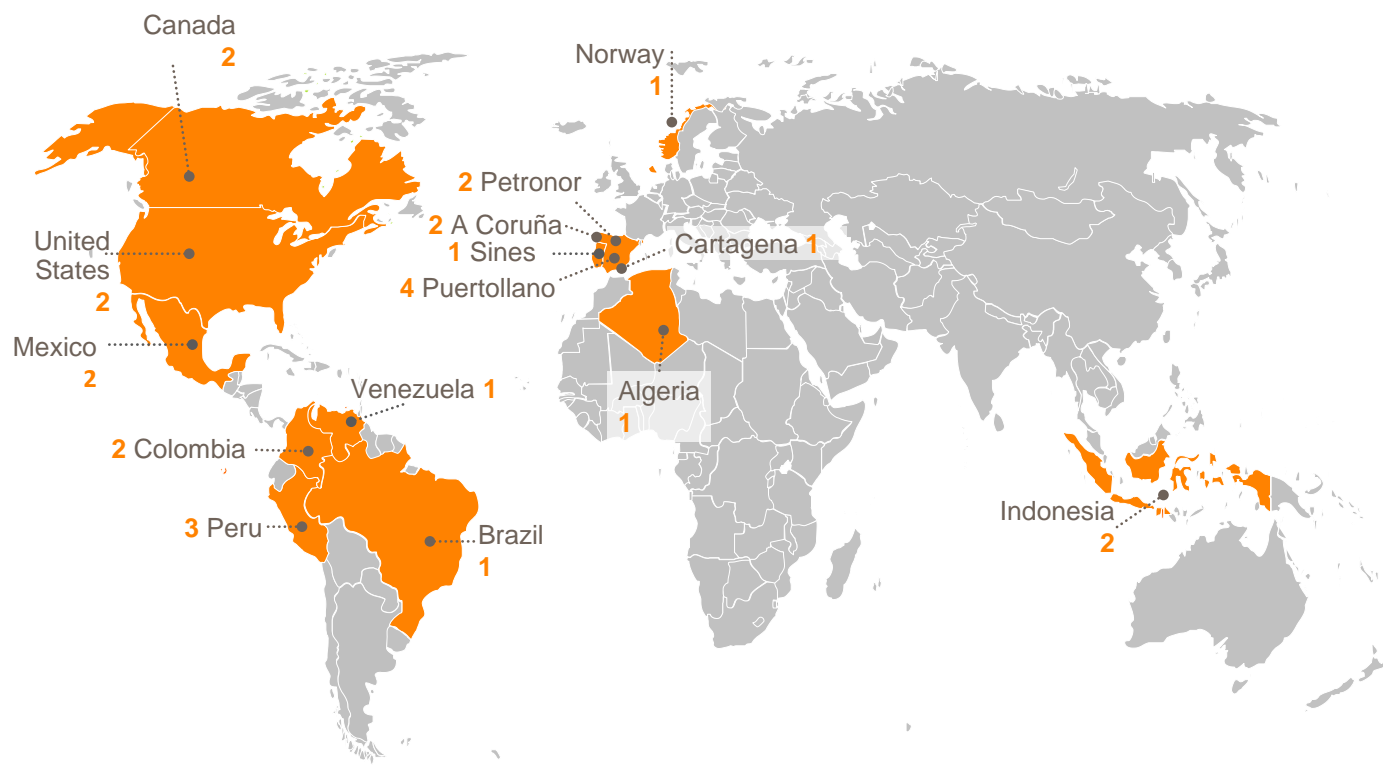
3 Balance

At the end of the year, it is time to review each of the **Innovation and technology initiatives of the Sustainability Plans** . The degree to which the objectives have been fulfilled is as follows:



Further down, we provide the actions from the **Innovation and technology axis**.

Number of actions in Innovation and Technology



4 List of actions

COUNTRY	ACTION
Algeria	<ul style="list-style-type: none">• Reduce drilling waste (cuttings) and water consumption.
Brazil	<ul style="list-style-type: none">• To advance in technological innovation, promoting the development of solutions focused on sustainability.
Canada	<ul style="list-style-type: none">• Support global digitalization efforts through our Electronic Permit To Work (ePTW) system.• Automated production management.
Colombia	<ul style="list-style-type: none">• Identify problems in non-operated assets that can be managed through technological solutions.• Continue the deployment of the new technology optimization program in Repsol Colombia.
Indonesia	<ul style="list-style-type: none">• Drive continuous improvement in our innovation and technological development.• Implement SharePoint 365 digital forms.
Mexico	<ul style="list-style-type: none">• Improve the IT systems of service stations to make them more secure in their operation.• Optimise systems by finding new ways of working.



4 List of actions

COUNTRY	ACTION
Norway	<ul style="list-style-type: none">• Increase knowledge sharing with regards to technology and tools.
Peru	<ul style="list-style-type: none">• Implement state-of-the-art tanks at service stations to guarantee environmentally responsible facilities.• Promote actions to generate an environment of innovation within the company as well as in the academic field.• Develop a mobile application as a loyalty tool for service station customers.
United States	<ul style="list-style-type: none">• Drive innovation to build an efficient and sustainable business.• Promote digital learning and development.
Venezuela	<ul style="list-style-type: none">• Implement the digitalization of work permits and the HSE (Health, Safety and Environment) Passport in Cardón IV operations.

4 List of actions

INDUSTRIAL COMPLEXES	ACTION
A Coruña	<ul style="list-style-type: none">Promote technological innovation in the refinery.Carry out the management plan for digital transformation initiatives in the Refinery.
Cartagena	<ul style="list-style-type: none">Implement digitization applications.
Petronor	<ul style="list-style-type: none">Obtain Green Hydrogen from biogas generated by pyrolysis of urban solid waste.Mineralize the capture of carbon dioxide (CO2) for later reuse.
Puertollano	<ul style="list-style-type: none">Promote technological innovation as a lever for transformation towards more sustainable business models.Boost the local economy through the Investment Plan.Promote the competitiveness of the chemical area of the Industrial Complex through the development of new products, improvement of current ones and access to new markets.Increase our new Reciclex range (incorporation of recycled polymer into our products) within our commitment to contribute to the circular economy.
Sines	<ul style="list-style-type: none">Promote technological innovation with the implementation of software dedicated to advanced predictive applications in the production of polymers.

5 Annexes



Below, we detail the actions carried out in the axis of Innovation and technology in all Local Sustainability Plans. The information referring to the countries and the reference to the industrial complexes are published in English.

Countries





Algeria

Action

Reduce drilling waste (cuttings) and water consumption.

Description

This initiative includes the following activities:

1. We will perform a slim well design in most of our wells with the aim of reducing the drilling waste (cuttings) and water consumption during operations.
2. We will implement the dewatering process (successfully tested in 2nd drilling campaign) in our drilling operations, with aim of reducing chemicals in drilling waste and water consumption.

Indicator

Prepare slimer designs within the next Drilling Programs.

Consider the dewatering package part of the solid control service.

What we've achieved



1. The wells to be drilled in 2022 in Groupement Reggane Nord (GRN) have a slim design with the aim of reducing the drilling waste (cuttings) and water consumption during operations.
2. The dewatering process has been approved and considered in the dewatering package as part of the solid control service for the wells to be drilled in 2022.

Contribution to the SDGs:





Brazil

Action

To advance in technological innovation, promoting the development of solutions focused on sustainability.

Description

We will continue with a portfolio of research, development and innovation at RSB (Repsol Sinopec Brasil) aligned with the Repsol group's sustainability model and focused on safety, environment, innovation and technology, and climate change.

Indicator

Achieve a 40% investment in Repsol Sinopec technology projects aligned with the axes of the Sustainability Model.

What we've achieved



We have started the ARIEL Phase 2, COIN Phase 4, USIS and DEEP SHIFT projects aimed at increasing the operations safety, better understanding the behavior of CO₂ in reservoirs, automating inspection tasks in a marine environment and biodiversity protection, with estimated investments at 19.5 million reais (40% of investments), scheduled between 2021 and 2023. Until December 2021, we have invested R\$7.5 million in the 4 projects.

Contribution to the SDGs:





Action

Support global digitalization efforts through our Electronic Permit To Work (ePTW) system.

Description

We will support global digitalization efforts through the implementation of an electronic permit to work system to reduce the use of paper. The ePTW system also improves our risk management and enhances the overall safety of our assets.

Indicator

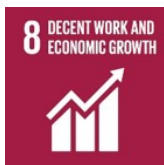
Implement Electronic Permit To Work system in our Chauvin and Edson assets by December 31, 2021.

What we've achieved



In 2021, we have successfully implemented the Electronic Permit to Work (ePTW) system by December 31, 2021. We achieved this by coordinating system training for field staff and deploying new devices to staff for compatibility with the system.

Contribution to the SDGs:





Canada

Action

Automated production management.

Description

We will work to unify all digital information related to wells that come from many data sources and systems to integrate analysis to improve efficiencies and field optimization.

Indicator

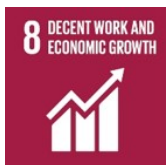
Chauvin and Edson Integrated Operating Centre and Production Engineering teams will implement a Minimum Viable Product (MVP), by September 30, 2021.

What we've achieved



We have implemented use of the Automated Production Management system in November 2021 in Edson and Chauvin. We have achieved this action through several working sessions with Production Engineering staff, sharing progress of the tool, and identifying opportunities for future use and improved efficiencies of the tool. In Chauvin we identified a new module for water flooding monitoring for implementation of use in 2022 which will improve production of water injection wells.

Contribution to the SDGs:





Colombia

Action

Identify problems in non-operated assets that can be managed through technological solutions.

Description

We will detect, together with the partners, at least one problem that requires the use of innovative technology. We will present the proposed technological solution for handling the problem.

Indicator

Present at least one proposal for a technological solution to the identified problem.

What we've achieved



We have made the presentation to Ecopetrol and Sierracol of READS (Repsol Environmental Analytics Data System). This is an application developed by Repsol that demonstrates the cost efficiency of the environmental management measures proposed against the impacts of the project.

Contribution to the SDGs:





Colombia

Action

Continue the deployment of the new technology optimization program in Repsol Colombia.

Description

We will take the necessary actions to reduce the IT infrastructure installed in the country and implement the new document management plan, in order to contribute to the optimization of processes and promote new digital solutions aligned with the new ways of working.

Indicator

Reach 100% of the implementation plan for the reduction of the country's installed systems infrastructure.

Reach 70% of the implementation of the new document management system.

What we've achieved



We have managed to remove 90% of the servers and 85% of the equipment, achieving the planned reduction of the system infrastructure installed in the country.

We have made progress in the implementation of the new document management system with 100% staff training and 100% implementation of the application for users.

Contribution to the SDGs:





Action

Drive continuous improvement in our innovation and technological development.

Description

We will provide Petro Technical vendor managed hardware and software service that will improve efficiency (time and cost), add value with scalability, accessibility and collaborative capacities.

Indicator

Implement the cloud collaboration environment for Petro Technical user's system.

What we've achieved



The Petro Technical vendor managed hardware and software service concept has been developed, and the implementation is being reviewed by SKK Migas (The Indonesia Oil and Gas regulator body).

The hardware and software will be implemented when we have got approval in 2022.

Contribution to the SDGs:





Indonesia

Action

Implement SharePoint 365 digital forms.

Description

We will use SharePoint 365 to develop the digital visitor form to encourage office paperless program which will reduce paper-based documents in the office.

Indicator

Implement the visitor form.

What we've achieved



We have developed and implemented the digital visitor form with SharePoint 365. This way, we encourage office paperless program, being more efficient with the resources and reducing our environmental impact.

Contribution to the SDGs:





Mexico

Action

Improve the IT systems of service stations to make them more secure in their operation.

Description

We will implement hardware upgrades to prevent cybercrime at service stations and awareness sessions with office staff to address potential incidents.

Indicator

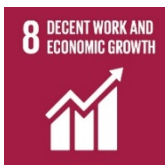
Implement the systems in 80% of service stations.

What we've achieved



We have implemented, through the Task Force, different systems that result in the safety and transparency of our operations: A more robust volumetric control system in 100% of the service stations that are flagged with Repsol. In addition, we have established the automation of the tank book, to ensure the quantity incorporated in the service station, increasing safety.

Contribution to the SDGs:





Mexico

Action

Optimise systems by finding new ways of working.

Description

We will incorporate a task force to execute enhancements to our systems framework so that repetitive tasks are automated, focusing working hours on those actions that add value.

Indicator

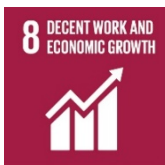
Implement an automation project.

What we've achieved



We have implemented 85% of a financial control system for our self-managed stations; and we have developed a Web service program, which allows us to obtain information from the stations automatically: sales, volumes, etc.

Contribution to the SDGs:





Noruega

Action

Increase knowledge sharing with regards to technology and tools.

Description

We will inform and engage our staff regarding our contributions in Research & Development initiatives (R&D) to foster understanding with focus on three key projects: READs, to integrate environmental criteria in decision making; Deep Purple, to produce renewable hydrogen; and Wartsila, to test ammonia as marine fuel.

Indicator

Arrange one global webinar for all Repsol employees about the Repsol Norge Zero Emission Coaches initiative.

Conduct two workshops related to our key R&D projects.

Conduct two workshops for staff to learn more about hydrogen "for dummies" and a general workshop about renewables.

What we've achieved



We have arranged a global webinar to share knowledge related to our Zero Emission Coaches initiative. This was completed with 47 participants.

We have presented two of the R&D projects as Lunch & Learns. The first presentation was on cold flow technology and the second presentation was related to wells barrier testing technology.

We have performed two workshops to increase general knowledge on hydrogen and on CO₂ reduction initiatives for offshore plants and subsurface storage of hydrogen and CO₂.

Contribution to the SDGs:





Action

Implement state-of-the-art tanks at service stations to guarantee environmentally responsible facilities.

Description

We will carry out the installation of metal storage tanks with external fiberglass coating in two service stations, being an innovative technology in the country that minimizes environmental impacts.

Indicator

Carry out the implementation in two service stations during this exercise.

What we've achieved



As part of the remodeling of the Lebar service station, we have replaced the storage tanks with metal tanks with an external fiberglass lining. For the construction of the Mar service station, we have considered the use of fiberglass-lined tanks within the engineering.

Contribution to the SDGs:





Action

Promote actions to generate an environment of innovation within the company as well as in the academic field.

Description

We will connect with the local innovation ecosystem, generating relationships and participation in different events with other related entities, both private and public. We will work in alliance with the University of Engineering and Technology (UTEC) to generate activities that contribute to the research and development of projects.

Indicator

Carry out two workshops with company experts as part of the Repsol Chair in Energy and Sustainability and develop a multidisciplinary project.

What we've achieved



We have carried out two workshops in coordination with the UTEC, which were given by experts from the Company on Customer Experience and Digital Transformation. We carry out interdisciplinary projects working together with the Mobility and Upstream business units. We have continued with the agreement with Shift, which allows us to keep up to date with the latest advances in innovation worldwide and gives us the opportunity to connect with the local innovation ecosystem.

Contribution to the SDGs:





Peru

Action

Develop a mobile application as a loyalty tool for service station customers.

Description

As part of a loyalty strategy, we will implement a technological application that allows us to strengthen the management of the relationship with service station customers and offer them a personalized value proposition.

Indicator

Implement the application in the first quarter of the year.

Reach 30,000 registered users in the application at the end of the period.

What we've achieved



We have launched the Repsol You app at the end of April 2021 and at the end of the year we exceeded 31,000 registered users. The application has among its main functionalities: location of service stations, my benefits (Promocard and LATAM Pass) and discounts in associated stores. Likewise, the option of discount coupons for customers, raffles and campaigns was implemented and the self-service functionality will be enabled again in 2022.

Contribution to the SDGs:





United States

Action

Drive innovation to build an efficient and sustainable business.

Description

We will identify opportunities to continue building a safe and efficient upstream asset through digitalization initiatives in the Eagle Ford Business Unit.

Indicator

Successfully migrate from paper-based to electronic-enabled permit to work for at least one work site or facility.

Adopt at least one new technology system to support the digitalization of our operations.

What we've achieved



We have carried out the electronic permit to work at six facilities (Kolo, Bluhm, 99, Cooke, STS and Ybar), and we are currently training other teams to implement the program too.

We are collaborating with the corporate office to implement the electronic permit to work technology system and Site Inspection form that is managed in the global online safety reporting database Synergi, which will replace the former system of paper copies and Excel files.

Contribution to the SDGs:





United States

Action

Promote digital learning and development.

Description

We will advance the capabilities of our employees to be more efficient and productive through the participation of Data School trainings.

Indicator

Achieve more than 40% of US employees participation.

What we've achieved



We have participated in two types of Data School trainings with a combined 15% of US employees participation and enrollment ongoing.

We have achieved 95% acceptance with 26 candidates proposed to the Data4Business mini-masters program.

Finally, we have enrolled 50 employees in the first Data4Everyone online training campaign during the third quarter of 2021.

Contribution to the SDGs:





Action

Implement the digitalization of work permits and the HSE (Health, Safety and Environment) Passport in Cardón IV operations.

Description

We will develop a project to digitalize Cardón IV, S.A.'s work permits so that they can be requested and approved by personnel from a website linked to a database, which will be managed within the company's administrative network. We will also develop the Cardón IV, S.A. HSE Passport, as a personal document with information on training, certification, physical aptitude and other relevant data on HSE issues, essential for working safely.

Indicator

Digitize 100% of the work permit format.

Digitize 100% of the certificates associated with the work permit.

Digitize 100% of the Work Risk Analysis (ART) format.

What we've achieved



We have completed the project to digitalise work permits, associated certificates and the work risk analysis form, making it available to employees. The HSE Passport is being managed for due diligence at the supplier.

Contribution to the SDGs:



Industrial Complexes





Action

Promote technological innovation in the refinery.

Description

We will operate the Matrix simultaneous network optimisation application, a pioneer in Repsol. It is based on the use of technologically advanced models for the optimised management of the refinery's fuel gas, hydrogen and steam networks. The result will be a lower use of material and energy resources.

Indicator

Achieve at least 80% in the level of use of the tool by 2021.

What we've achieved



An average utilization rate of more than 95% has been achieved in 2021 since the tool was launched in May this year.

Contribution to the SDGs:





Action

Carry out the management plan for digital transformation initiatives in the Refinery.

Description

We will play an active role in improving digital implementation in the refinery.

Digitalisation puts people (customers, employees, suppliers, etc.) at the centre, as the architects of improvement, through new digital technologies and new ways of working.

Indicator

Scale up 100% of the digital initiatives corresponding to A Coruña.

What we've achieved



We have achieved 100% implementation of digital initiatives: We have developed 3 Big-Bet initiatives (high impact), including the Analytical Model RTO, a real-time optimization model in the FCC unit. We have developed 7 Non-Big-Bet initiatives (not high impact) and we highlight Supervisor Tasks, which advances in the digitalization of the maintenance supervisor's processes. We have achieved 4 Minimum Viable Products of which we highlight the Matrix application.

Contribution to the SDGs:





Cartagena

Action

Implement digitisation applications.

Description

We will drive digitalisation in the refinery to transform the way we work, enabling us to maximise the effectiveness of our results.

Indicator

Start up 8 digitalisation projects at the Cartagena refinery. Two of them will be implemented for the first time in Repsol.

What we've achieved



Digitalisation is one of Repsol's key levers for leading the energy transition. At the Cartagena refinery, we have launched eight projects, and another five have been developed, ranging from improving the efficiency of equipment and processes to adding value to data. Two of them are pioneering in Repsol. The 'Soft Sensors' project is already underway, and the second, CK Optimizer, is scheduled for implementation in 2022.

Contribution to the SDGs:





Action

Obtain Green Hydrogen from biogas generated by pyrolysis of urban solid waste.

Description

We will draft the project for the construction of the Green Hydrogen (H₂) production facilities generated from biogas obtained by pyrolysis of urban solid waste.

Indicator

Carry out the Conceptual Engineering of the project in July 2021.

Approve the Basic Engineering of the project in September 2021.

What we've achieved



In order to select the most efficient technology, we have carried out technological feasibility studies in July 2021. After choosing the most appropriate, the Conceptual Engineering project will be carried out.

Contribution to the SDGs:





Action

Mineralize the capture of carbon dioxide (CO₂) for later reuse.

Description

We will draw up the project for the construction of the installations for the collection and mineralization of Carbon Dioxide (CO₂) that we will use in the manufacture of synthetic fuels.

Indicator

Approve the Basic Engineering of the project in September 2021.

What we've achieved



We have carried out both projects, Conceptual and Basic Engineering, in December 2021. The project is innovative and aligned with energy decarbonization, allowing the creation of CO₂ sinks. The project will apply circular economy strategies to urban solid waste, once it has been treated in energy recovery plants.

Contribution to the SDGs:





Puertollano

Action

Promote technological innovation as a lever for transformation towards more sustainable business models.

Description

We will implement digitalization as a lever for transformation in the Puertollano Industrial Complex, with the incorporation of tools in many of the industrial processes to increase safety, improve reliability and optimize production, increasing competitiveness.

Indicator

Complete the implementation in the Puertollano Industrial Complex of at least 8 new tools/ digitization projects.

What we've achieved



We have met the goal by launching 8 new digital tools. These new tools are aimed at guaranteeing a more efficient and safe operation. Among them, those used to automate and optimize production programming, monthly manufacturing plans, and planning maintenance schedules based on the state of the facilities stand out.

Contribution to the SDGs:





Action

Boost the local economy through the Investment Plan.

Description

We will maintain the level of investment of recent years for the execution of projects with the aim of increasing the safety, competitiveness and energy efficiency of the Industrial Complex. Many of the local companies participate in the contracting processes for the execution of these works, given their high level of specialization, which has repercussions on the socioeconomic development of our environment.

Indicator

Reach a disbursement level in the Investment Plan that exceeds 80% of the 2017-2020 average.

What we've achieved



The level of disbursement made in 2021 in the Investment Plan has remained in line with the trend of recent years, easily exceeding the established objective and contributing significantly to the revitalization of the local economy. In total, this year we have invested more than 80 million euros (146% of the 2017-2020 average), somewhat more than other years, due to the significant investment in the shutdown of the Chemicals area in May.

Contribution to the SDGs:





Action

Promote the competitiveness of the chemical area of the Industrial Complex through the development of new products, improvement of current ones and access to new markets.

Description

We will boost the competitiveness of the chemical area through the manufacture of new grades, maintaining the quality of the grades we already manufacture and seeking greater differentiation. Research and innovation will be promoted to manufacture more versatile and more useful products.

Indicator

Carry out a minimum of 20 actions related to innovation, research and range development (pilot plant tests, industrial tests and new products).

What we've achieved



We have achieved 100% of the objective by carrying out 20 development tests in the units, highlighting those carried out in the low-density finishing plant, where we have expanded the range of products and have carried out developments in our polyol pilot plant to improve and optimize our range of grades.

Contribution to the SDGs:





Action

Increase our new Reciclex range (incorporation of recycled polymer into our products) within our commitment to contribute to the circular economy.

Description

We will consolidate the Reciclex project through which we incorporate recycled polymer into our products and chemical range. We will increase our range with a percentage of recycled material that reaches 85% (currently we incorporate a percentage of recycled material that goes from 35% to 80% to our polyolefins) guaranteeing that the final product has the same quality and performance as the virgin product.

Indicator

Increase the incorporation of recycled material into our products to reach 85%, thus expanding our range.

What we've achieved



We have increased the percentage of recycled material in our range of Reciclex circular polyolefins. Currently our Reciclex product incorporates 85% recycled material with all the guarantees of quality and usability for use in applications such as shrink film or easy-tear film.

Contribution to the SDGs:





Sines

Action

Promote technological innovation with the implementation of software dedicated to advanced predictive applications in the production of polymers.

Description

We will carry out the optimization applications in a personalized way, thus obtaining the benefit of energy savings in product transitions and improving the quality of our products.

Indicator

Completion and commissioning before the end of the year.

What we've achieved



We have reached 100% of the objective with the commissioning of the DMC (predictive multivariable control) and launched in June 2021. The commissioning of the Transition Manager is scheduled for March 2022. We have improved the quality of our products with the implementation of this technological innovation.

Contribution to the SDGs:



6 More Information



If you want to know more information about the Sustainability Plans in which you find these actions you can visit our website repsol.com

