

Natural Resources Management

Our impact on the environment – and responsibility to act – extends beyond just greenhouse gases. As an oil, gas, and chemicals company, OMV's environmental footprint is significant as it pertains to water use, environmental degradation due to spills, biodiversity impacts, and waste. But we also have the technological know-how to present solutions, in particular by fostering the circular economy. In contrast to the “take-make-waste” linear model, which will lead to more plastic waste and environmental pollution, while putting pressure on the planet's limited resources, a circular economy is regenerative by design and aims to decouple growth from the consumption of finite resources.

OMV is fully committed to taking action on responsible natural resources management and will proactively expedite the transition from a linear to a circular economy. OMV aims to minimize environmental impacts by preventing water and soil pollution, reducing emissions, efficiently using natural resources, and avoiding biodiversity disruption.

The Natural Resources Management strategic focus area combines our commitments and actions relating to environmental preservation under one umbrella. The first step is to manage our operational footprint, as described in the Environment material topic. The Circular Economy material topic then describes the strategies and technologies we are applying to recover and reuse by-products or waste to make new materials and products, resulting in a cleaner environment.



Environment

Material Topic: Environment

Protecting natural resources and ecosystems, especially through prevention of spills and water, air, and soil pollution.

Key GRI

- ▶ GRI 303: Water and Effluents 2018
- ▶ GRI 305: Emissions 2016
- ▶ GRI 306: Waste 2020
- ▶ GRI 306: Effluents and Waste 2016
- ▶ GRI 307: Environmental Compliance 2016

NaDiVeG

- ▶ Environmental concerns

Most relevant SDGs



OMV aims to minimize environmental impacts by, for instance, preventing water and soil pollution. OMV is liable for the impact that our activities have on the environment. Breaching environmental regulations on a local, national, and international level would result in both monetary losses and harm to our reputation. Our license to operate

depends on compliance with regulations relating to environmental protection, which is also of particular importance to governmental authorities, shareholders, and stakeholders, such as the public and environmental NGOs and NPOs. OMV's Code of Conduct and HSSE Policy formalize our public commitments to safeguarding the environment.



Targets 2025 and 2030

- ▶ Increase waste reuse and recycling from operations
- ▶ Reduce freshwater withdrawal

Target 2030

- ▶ Reduce natural resources use by reducing oil and gas production levels to below 400 kboe/d and by reducing crude distillation throughput by 2.6 mn t

Status 2021

- ▶ Waste recovery or recycling rate: 68%
- ▶ Freshwater withdrawal: 332,901 megaliters
- ▶ Production: 486 kboe/d
- ▶ Crude throughput: 15.7 mn t



Relevant SDGs



SDG targets:

- 3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
- 6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
- 6.4** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
- 6.6** By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- 12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
- 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
- 15.5** Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species¹⁷

Our internal Environmental Management (EM) Standard stipulates an assessment of environmental impacts and risks, and adherence to environmental performance requirements in terms of energy use, emissions into the atmosphere, water use and discharge, the use of raw materials, waste management, hazardous substance handling, and biodiversity and ecosystem protection. In 2020, the Environmental Management Standard was revised and minimum requirements on odor emissions were established. In 2021, we revised the Environmental Management Standard again. This time we added minimum requirements on H₂S in vented gas and the design of the environmental processes to complement the implementation of the EM Standard.

Before undertaking new operational activities or entering new countries, we perform environmental risk assessments, including evaluations of local legislation, the potential impact of our activities on sensitive and protected areas, and the effects on endangered species. Each subsequent phase of project implementation is accompanied by a detailed assessment of environmental risks.

The framework and methodology for our coordinated Group-wide Environmental Risk Assessment are based on best practice standards, meet ISO 14001 requirements, and ensure the consistent qualitative assessment of operational risks and impacts related to the environment. The resulting environmental risk database includes information on existing controls for environmental risks and future actions required.

The OMV Group Environmental Management Standard furthermore defines the process of carrying out Environmental and Social Impact Assessments (ESIAs), mainly for

projects. Preventive and mitigation measures and the monitoring program to ensure implementation of the proposed measures are documented in an Environmental and Social Management Plan. The final ESIA report is submitted to the local regulator or lender (whichever is applicable) for review, public disclosure, and approval.

63% of sites certified to ISO 14001

The OMV Group Environmental Management Standard requires that all relevant OMV businesses and activities (including investment, acquisitions, and divestment) implement an Environmental Management System (EMS) consistent with ISO 14001 and adhere to the minimum requirements listed. All relevant OMV businesses are required to review and update the EMS at least once per year, while a full EMS audit must be carried out either by an external independent auditor or OMV corporate environmental experts every three years for sites not certified to ISO 14001. Internal EMS audits are performed at the local level regularly and as necessary to identify improvement measures.

Governance

There is a high degree of interdependence between the Environment material topic and the material topics Health, Safety, and Well-Being as well as Security, Emergency, and Crisis Resilience. Thus, these distinct material topics are governed centrally by Group HSSE. The OMV Group HSSE department is organized in specialized teams with experienced experts, in areas such as:

¹⁷ Several UN SDG subtargets were initially designated to be reached by 2020. However, sources such as the UN's Global Biodiversity Outlook state that goals related to nature have not been met. OMV still considers the attainment of these goals relevant past the year 2020, and thus still links these SDG subtargets to its strategic targets.



- ▶ Development and implementation of OMV's HSSE strategy, regulations, and processes
- ▶ HSSE risk assessment
- ▶ Incident investigation
- ▶ HSSE data analysis and reporting
- ▶ Environmental management
- ▶ Process safety management
- ▶ Security and resilience management

Group HSSE is led by the SVP HSSE, who reports directly to the Chief Executive Officer. There are HSSE departments at OMV Petrom and Borealis, which oversee their specific issues and coordinate their local HSSE officers and experts. The OMV Petrom and the Borealis HSSE departments report functionally to the SVP HSSE at Group level.

Our commitment to environmental protection is anchored at the highest level. The Executive Board's bonus is subject to a Sustainability Multiplier. This Sustainability Multiplier considers the number and volume of oil spills, among other factors. The multiplier, and thus the Executive Board's bonus, is reduced in case of high frequency and volume of spills.

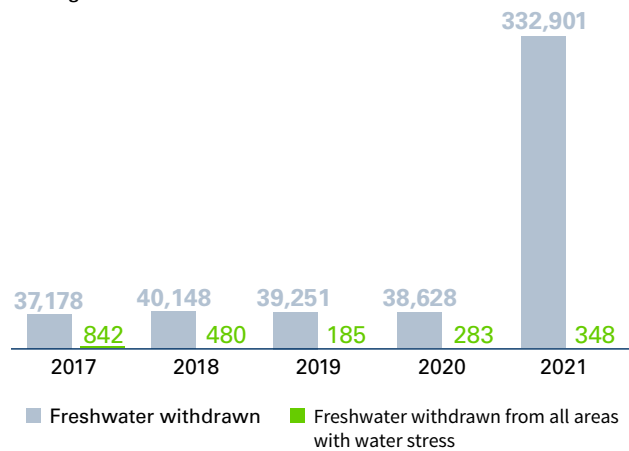
Environmental awareness is promoted throughout the Group through various activities. For instance, Quarterly Exchange on Environmental Management meetings are held where environmental experts and interested colleagues from all countries can learn about best practices being implemented at other sites and gain inspiration. At OMV Petrom, a contest to highlight key initiatives in the company was launched, with winners receiving awards from the Petrom Executive Board. Due to COVID-19 restrictions, this event was organized online, reaching over 1,300 employees.

Water

OMV uses significant amounts of water for its operations in its upstream and downstream activities. Freshwater is used, for example, for drilling, steam generation, and cooling, among other processes. Smaller amounts of water are also used for non-industrial purposes. Produced water is treated for reinjection to pressurize hydrocarbon reservoirs in order to optimize the extraction rate. Desalinated water is used in some offshore operations. Refineries and various other operating facilities also use brackish and/or recycled water for various operational purposes. Some of OMV's operating facilities are located in water-stressed areas.¹⁸

Freshwater Withdrawn¹⁹

In megaliters



Specific Policies and Commitments

Our Water Ambition Statement is OMV's public commitment to water management, and says the following:

- ▶ We respect water as a precious limited resource and focus on its sustainable use.
- ▶ We are committed to meeting all applicable legislative requirements or our OMV regulations – whichever is more stringent.
- ▶ Water management is a key component of our social license to operate. We cooperate with local communities and prove to be responsible partners.
- ▶ We are committed to transparency when it comes to our impact on water resources.
- ▶ Every OMV employee is responsible for minimizing the impact of our activities on water resources.

The OMV Group Environmental Management Standard requires all OMV businesses and activities to minimize the impact of effluents on the environment and on local communities, and outlines specific requirements for wastewater discharge onshore and offshore. The direct discharge of wastewater on land, in wetlands, or in other water bodies without prior treatment is not permitted. No discharge may alter or diminish the value of the receiving environment. All discharge must be systematically monitored, and any environmental impact must be managed appropriately. Local regulatory and river basin authorities are involved to ensure that OMV is in compliance with local environmental regulations and has obtained all of the required permits.

¹⁸ Water-stressed areas are areas where the demand for water exceeds the available amount during a certain period or when poor quality restricts its use. In such areas, water stress causes deterioration of freshwater resources in terms of quantity (aquifer overexploitation, dry rivers, etc.) and quality (eutrophication, organic matter pollution, saline intrusion, etc.). Source: [European Environmental Agency](#).

¹⁹ The increase in freshwater withdrawn in 2021 compared to previous years is due to the consolidation of Borealis. The majority of freshwater withdrawn at Borealis is once-through cooling water, meaning it is discharged to the environment in its original quality, only with a very slightly elevated temperature. See Environmental Data for details.



Management and Due Diligence Processes

OMV's Group-wide Water Strategy was drafted in 2014 and is based on five strategic pillars: transparency; risks and opportunities; water efficiency and treatment; training and awareness; stakeholder engagement.

Risk Assessments

High-level water stress assessments are conducted on an annual basis. OMV uses international tools and indexes, such as Verisk Maplecroft's Water Stress Index complemented by the World Resources Institute's (WRI) Aqueduct Baseline Water Stress Index, as well as own assessments as required, to identify operations in areas affected by water scarcity and water stress. A bottom-up approach in the assessment of water-related risks is taken in accordance with OMV's Group-wide Environmental Risk Assessment (ERA) guideline to ensure consistent qualitative assessments of operational risks and impacts related to the environment, including water. Significant risks are integrated into OMV's Enterprise-Wide Risk Management (EWRM) system. When entering a new country or considering new operational activities, OMV primarily uses the World Resources Institute's (WRI) Aqueduct and Verisk Maplecroft indexes to identify future potential water-related constraints, such as baseline water stress, groundwater stress, and seasonal variability.

Given that some regions where OMV Petrom operates have already experienced water stress in dry years and that a further decline in water availability is expected, mainly due to climate change, we continuously conduct risk assessments. The water risk assessments are performed by using an international methodology developed by WWF. Both river basin data and industrial activity data are analyzed. The evaluation takes into account physical criteria, including water scarcity as well as compliance and reputational aspects. In any case, we deem it necessary to continue implementing measures for efficient water use. Results from these water risk assessments are used as input for assessing climate change-related water stress risk.

Water-management-related risks are closely linked with the topic of spill prevention. Offshore operations may lead to oil spills with significant impact on marine water resources and ecosystems. The response strategy aims to minimize the probability of such risks and maximize readiness so that we can provide timely remediation measures in the unlikely event of an oil spill. OMV allocates significant resources to prevention and mitigation measures (read more about spill prevention in the section [Spills](#)). Any new or existing offshore drilling activity is accompanied by a third-party analysis evaluating the magnitude of a major event and its possible consequences. As part of the biannual Group-wide EWRM process, water-related

risks and mitigation measures are assessed in a larger strategic context, while a systematic approach is taken in day-to-day operations to monitor and to manage high-impact/low-probability risks, such as blowouts during off-shore drilling.

Management Plans and Technologies

Operating facilities located in places that are affected or are likely to be affected by water scarcity issues and operations utilizing significant water resources (e.g., Tunisia) are prioritized when developing and implementing water management plans. These plans aim to allow sustainable long-term production with minimal effects on the environment. One measure to reduce freshwater withdrawal to a minimum is the installation of recirculating cooling systems.

In addition to implementing measures to reduce freshwater withdrawal, we implement the best available technologies to sustainably treat water. For instance, after a technology optimization campaign in Schönkirchen, we can now operate our produced water treatment plant without the use of water clarification chemicals. By achieving even better treatment efficiency, we are able to additionally reduce 75% of the residual volumes for thermal disposal. Furthermore, we have developed a highly effective innovative filtration technology that uses crushed recycled glass.

Stakeholder Engagement

Our impact on water resources is important to various stakeholders. We engage with government authorities, such as river basin management authorities, on compliance with water use rules and environmental parameters relating to wastewater generated. We also engage with local water utilities about the supply of freshwater for OMV operations and the treatment of wastewater. We additionally work with NGOs on environmental preservation and water resource conservation, as well as with local communities on the sharing of local water resources and the quality of discharged wastewater. For instance, in Austria, there are local fishermen who fish the Danube River in Schwechat close to both the refinery and the Lobau tank farm, and in the harbor there, with whom an active and open dialogue has been maintained for years. In areas where OMV operations require large amounts of water, or areas that suffer from water stress, it is particularly important to include local stakeholders in water management activities in order to secure a "social license to operate." OMV water management activities pursue socially equitable water use, and OMV regularly carries out supplier audits to ensure compliance with our human rights requirements.

To ensure that the interests of local communities are known and taken into account during the project life cycle, OMV conducts social baseline studies and community



needs assessments as part of Social Impact Assessments (SIAs). If these assessments identify the need, OMV launches community projects aimed at increasing access to clean water for local communities. Our Community Grievance Mechanisms also enable communities to raise concerns about water-related issues. (For more information, see [Community Impacts and Grievances](#).)

2021 Actions

The following key activities were carried out across the Group in 2021:

- ▶ In 2021, our operations in Yemen applied new water management plans and wastewater management procedures. The wastewater treatment plants, installed a few years ago, were upgraded, now allowing the treated water to be used for irrigation in this very arid environment. Furthermore, improvements were made in produced water management. Before, a simple plastic liner was used in the produced water evaporation ponds. In 2021, an HPDE liner was installed. Oil skimming barriers were also installed. These surround the floating oil to prevent it from spreading over the water's surface, and increase its thickness to facilitate recovery. The oil can thus be diverted to a suitable collection point for removal, and the increase of clear surface water increases the water evaporation rate.
- ▶ At the Schwechat refinery, more than 800,000 m³/year of water is being conserved by implementing targeted measures. This corresponds to more than 5% of the average annual water consumption there. The majority of the reduction was achieved by implementing a control concept for the cooling water in a heat exchanger group in the ethylene plant. Additional measures included the optimization of a cooling tower and the introduction of special operation modes for summer and winter periods, a systematic screening for possible leakages with immediate repairs, and the identification and adjustment of temporary water withdrawals.
- ▶ In 2021, our subsidiary Borealis became a member of the UN Global Compact and signed the UN Sustainable Ocean Principles. These commit companies to restoring and maintaining a healthy and productive ocean. Stopping the leakage of plastics into the environment and the oceans is a global challenge. Borealis is actively engaging in addressing this issue by advancing the circular economy of plastics, keeping the material in the loop, and thus preventing it from becoming waste in the first place. Moreover, Borealis has initiated Project STOP, a pioneering program to support cities in developing and emerging countries to establish cost-efficient, effective, and more circular waste collection systems. Read more on actions

Borealis is taking to prevent plastic leakage on the [Project STOP website](#).

Water management plans have been completed for **33%** of priority sites, with the development of plans in progress at the remaining sites.

0.10% of freshwater withdrawal is in water scarce areas.

Dispersed oil concentration in discharged water: **0.26 mg/l**

Outlook

As part of our Sustainability Strategy 2030, we aim to reduce freshwater use. As a next step, we plan to establish quantitative targets to improve water management. In 2022, we plan to evaluate joining international initiatives, such as the CEO Water Mandate, to formalize our commitment to equitable water use. We will also continue our efforts to recycle water wherever possible.

Spills

Oil spills²⁰ are a critical environmental issue for our industry. Spills management is defined as the prevention of spills in operations and other spills (e.g., caused by sabotage or natural hazards), and the management and remediation of spills resulting from an incident. Our key commitment is to prevent spills in the first place. If they do occur, we aim to reduce their impact by appropriate and fast oil spill response and clean-up.

Multiple stakeholder groups are affected by our spills management activities. Government authorities are involved through potential breaches of environmental regulations; employees and contractors through potential health and safety issues arising from accidents and damage to the environment and society; NGOs/NPOs through potential damage to the environment and society; society through damage to the surrounding environment; and shareholders through direct financial losses due to the costs of remediation measures and reputational risks.

Furthermore, as OMV is diversifying, oil spills are no longer the only relevant spills. For our subsidiary Borealis, preventing pellet spills is also a key issue. Borealis is committed to achieving zero pellet loss in and around its operations, during transportation, and across the entire value chain. The company was therefore an early signatory to Operation Clean Sweep[®] (OCS), an international program initiated by the Society of the Plastics Industry and the American Chemistry Council and rolled out in Europe by PlasticsEurope. Borealis is also a signatory of the "Zero

²⁰ Oil spills are defined as hydrocarbon liquid spills that reach the environment.



Pellet Loss” pact in Austria, which is the Austrian equivalent to OCS. Achieving zero pellet loss is a continuous journey and requires leadership, effort, investment, and targeted and effective work practices. The following section will discuss our management of oil spills. Read more about our efforts on pellet spills in the [Borealis Annual Report](#).

Management and Due Diligence Processes

We aim to prevent and reduce oil spills and leakage in our operations at sea as well as on land. Appropriate spill prevention and control plans that account for specific business conditions have been put in place. These include proactive management plans including risk assessment, preventive measures, and inspections, as well as reactive management plans including control, response, and clean-up procedures. The majority of our oil spills involve E&P OMV Petrom, where we concentrate our efforts to safeguard and maintain our infrastructure and to improve the reliability of our facilities.

Hazard Identification and Risk Assessments

We have a well integrity management system in place, and detailed Hazard and Operability (HAZOP) and Hazard Identification (HAZID) studies have been conducted for all of our wells.

OMV has also developed a Corrosion Management Framework (CMF) to provide a proactive and consistent approach to corrosion monitoring and management across the entire OMV Group. Covering the full life cycle of the equipment exposed to the risk of corrosion in both oil and gas facilities from the well to the sales point, this framework encompasses the entire value chain of our business. A team of 30 in-house experts with multidisciplinary and multicultural backgrounds are working to embed CMF principles into everyday operations.

Emergency Response and Contingency Plans

We conduct spill response according to a plan which identifies appropriate resources (persons in charge and intervention materials) and expertise. This plan assists on-site personnel with dealing with spills by clearly setting out the responsibilities for the actions necessary to stop and contain the spill and to mitigate its effects. This includes techniques for preventing the spill from moving beyond the immediate site, and collecting the spilled substance and contaminated material. Clear communication and coordination protocols are set out in the local plans, particularly where national or international response resources may be required. We carry out regular oil spill response drills and training.

Clean-up and Remediation

Hydrocarbon spills are assessed and cleaned up immediately after their occurrence in accordance with internal pro-

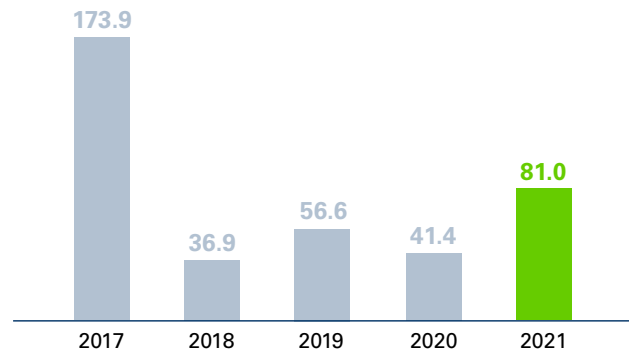
cedures governing spill remediation. In particularly difficult cases, we rely on third-party support for capping and containment, surface clean-up, and emergency management. Leaks are repaired immediately or within defined time frames in accordance with the site’s maintenance processes and based on the risk assessment outcome and other factors, such as feasibility of repair during operation. In order to strengthen our response to and reduce the environmental impact of oil spills, we continued to perform emergency drills, including pollution scenarios. We approach remediation measures in line with the relevant legal requirements, which include clean-up, restoration, rehabilitation, and/or replacement of damaged environmental receptors.

We ensure that the affected land is fit for the intended use by implementing remediation measures, including cleaning up spills (e.g., by excavation and clean earth filling) as well as relying on natural attenuation (recovery) based on the respective decision of the environmental authorities. Provisions are recognized in our accounts for the liabilities related to spills and cover cleaning and remediation costs.

2021 Actions

Total volume of spills

In m³



OMV recorded three major spills in 2021; the most significant spill was caused by a truck rollover incident in Romania, when the tank lid was damaged and around 18,000 l of fuel (diesel and gasoline) were released to the environment.

The majority of our spills occur at OMV Petrom. In 2021, OMV Petrom continued to improve the Pipeline Integrity Management Program, even during challenging times. New and existing risks were prioritized using the Pipeline Integrity Management System software. The highest-ranked pipelines were targeted for complete or sectional replacement, again ensuring that our pipeline integrity efforts focus on the locations where the greatest risks exist. We also continued developing corrosion management plans for our high-risk pipelines along with projects to install “pig launchers and receivers” to enable cleaning and internal



inspection of these pipelines. External coatings and cathodic protection are now mandatory for all new metallic pipelines in accordance with OMV Group and OMV Petrom standards and procedures. A pipeline inspection program is in place and functional for all pipelines with capability for internal inspection. The program is managed and planned in SAP CMMS (Computerized Maintenance Management System).

Outlook

We aim to reduce the number of process safety events at all our sites across the globe resulting in reduction of spills as well. (Read more in [Process Safety](#).)

Waste

Our production activities generate solid and liquid waste, including hazardous waste, such as oily sludge, waste chemicals, catalysts, and construction debris. Examples of non-hazardous waste include concrete not containing dangerous substances, welding waste, drilling wastes, mud without oil content, as well as mixed municipal waste, paper, and metal.

In addition, as a producer of plastics, we are deeply aware of the issue of plastic waste. Too often, unmanaged plastic waste is dumped in unsanitary landfills or burned, therefore increasing the risk of leakage into waterways, lakes, or oceans and thus causing negative impacts on the environment, marine life, and, potentially, human health. This section of the Sustainability Report focuses on waste management in our operations. (For more on end-of-life waste, please see the focus area [Circular Economy](#).)

Specific Policies and Commitments

According to OMV's Environmental Management Standard, all OMV Group businesses and activities are required to identify and to use the lowest hazardous material option as well as to minimize both the use of raw materials and the subsequent generation of waste. The following hierarchy is applied to control waste: prevention, preparation for reuse, recycling, other recovery (e.g., energy recovery), and, lastly, disposal in a controlled manner. The disposal of liquids in landfills and the burning of solid and liquid materials in open burning pits or any other locations are not permitted.

The OMV Group Environmental Management Standard further requires that environmental and social components be identified for the entire life cycle of facilities, including decommissioning and abandonment, so that any future adaptation measures can be identified and planned for. The needs of local communities, including indigenous peoples, are incorporated and addressed throughout all phases of the project life cycle, including during decommissioning or abandonment.

Management and Due Diligence Processes

Application of Best Practices

International industry best practice is applied for the management and treatment of waste. Where existing local, regional, or national waste management facilities are inadequate, OMV supports third parties to develop their capability.

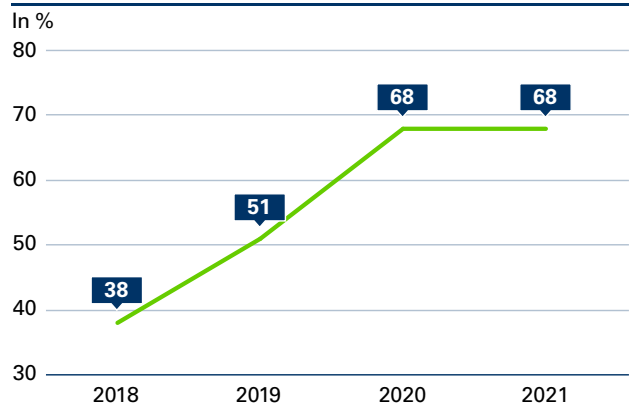
We also apply best practices in the management of drilling waste. For example, in our E&P OMV Petrom Crișana asset, inert drill cuttings stemming from water-based drilling waste are picked up by a waste management contractor and used as a stabilization agent for other waste (mostly sludge) along with other stabilization materials such as cement. The stabilized waste is subjected to a leaching test and, depending on the test results, can be used as a cover layer in non-hazardous waste landfills.

Recycling

Waste is recovered and recycled where possible, including during site closure and decommissioning. If recycling is not possible, all waste is processed and/or disposed of only in licensed facilities or via reputable licensed contractors. Waste contractors are regularly audited.

2021 Actions

Waste Recovery or Recycling Rate



The following key activities were carried out across the Group in 2021:

- ▶ In 2021 we completed a challenging pilot project: the subsurface abandonment of the 805 Bustuchin well in Romania. The well was affected by a landslide, so we did consolidation work through a mining construction to reach the depth of 27 m. Land consolidation was necessary to cut and reconnect broken casings. In addition to the land slide and large area to be excavated, another challenge was working in a confined space and dangerous environment. We successfully restored the verticality of the casings with environ-



mental benefits including the elimination of the blowout risk (the well is located in a forest area and closed to the community); the avoidance of gas emissions from the well area; and the aquifer being isolated in the excavation area.

- ▶ In 2021, OMV Petrom continued cleaning, remediation, and ecological reconstruction work on nine former fuel terminals, which started in 2019. This showcases the company's commitment to responsible management of the end life of operations. Besides the around 145,000 m³ in petroleum-contaminated soil/subsoil, which was removed and treated in 2020, around 77,000 m³ of contaminated soil/subsoil was removed and treated in 2021 using site-specific methods in line with best practice (e.g., bioremediation technologies off-site, on-site, in-situ, in-situ with injection). The bioremediation infrastructure includes 11 bioremediation plants, 4 final deposit and 8 temporary storage platforms, strategically distributed throughout Romania. Our state-of-the-art bioremediation plants receive contaminated soil from, e.g., abandonment works, accidental spill, and operation works, which is saved and then placed in batches. The addition of minerals, nutrients, structural materials, and water follows, after which it is aerated. Thus, the microbiological activity that leads to the degradation of petroleum products is stimulated. After several aeration cycles, soil samples are taken from each batch and the total oil hydrocarbon content is determined. Depending on the results of the analyses, the bioremediated soil is classified as backfill soil, used to fill excavations, stabilizations, leveling and final storage soil, which is stored in final deposits, which belong either to our Company or to third parties. We achieved a recovery rate of 99% for the contaminated soil treated, which we further used for on-site backfills or directed to other authorized locations. In 2022, we will continue with the site restoration of the old Constanța and Oradea fuel terminals.

Outlook

As part of our Strategy 2030, we plan to increase waste reuse and recycling from operations. In 2022, we plan to review the Waste Management Plans across OMV.

Biodiversity

Biodiversity supports human and societal needs, including food and nutrition security, energy, development of medicines and pharmaceuticals, and freshwater, which together underpin good health. It also supports economic opportunities and leisure activities that contribute to overall well-being. Biodiversity conservation provides substantial benefits, such as clean, consistent water flows, protection from floods and storms, and a stable climate. The loss of

biodiversity is dangerous, and its consequences are immediate. The EU's biodiversity strategy for 2030 is a comprehensive, ambitious, and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity on a path to recovery by 2030, and contains specific actions and commitments.

Specific Policies and Commitments

OMV's Group Environmental Management Standard and Environmental and Social Impact Assessment Procedure state that all OMV activities must be conducted in such a way as to cause minimal disturbance to protected areas and to local flora and fauna.

Management and Due Diligence Processes

Risk Assessments

Observed or predicted direct and indirect impacts on biodiversity and ecosystem services (BES) are described and analyzed in the environmental impact assessment. BES screenings are carried out at all relevant sites to identify, as far as reasonably possible, the potential for the presence of nationally or globally threatened species, legally protected threatened or fragile ecosystems, and internationally recognized areas with sensitive biodiversity. In 2021, OMV announced that it was selling its stake in the Wisting oil field in the Barents Sea of Norway, thereby exiting Arctic oil discovery.

Biodiversity Management Plans

OMV joined the Biodiversity Task Force of the International Petroleum Industry Environmental Conservation Association, which is working on an update of the guide to developing biodiversity action plans. Based on that guide, OMV aims to develop Biodiversity Management Plans for all major operations.

Mitigation and Rehabilitation

In the event of significant observed or predicted impacts, we apply the mitigation hierarchy, and action planning gives priority to avoidance and minimization over restoration and offsetting of the impact. Mitigation measures include, for instance, rerouting of pipelines.

For instance, in 2021, OMV Petrom continued the cleaning, remediation, and ecological reconstruction works for nine former fuel terminals, which started in 2019 (for more information, see [Waste](#)). During this project, we performed periodic monitoring during and after site rehabilitation, as requested for each site by the environmental authorities. For example, during site rehabilitation, we took samples of soil/subsoil and monitored the groundwater in each phase of the project (e.g., excavation, bioremediation). We monitored the quality of soil/subsoil and/or underground water after site rehabilitation when requested by the environ-



mental authority. We also monitor the site status (e.g., land covering by grass, soil compaction) on a quarterly basis for one year after our works are finalized.

Working with NGOs

OMV works locally with NGOs and other third parties on restoration and rehabilitation projects. For example, in 2021, we supported the following biodiversity-related projects in New Zealand as part of our wider Corporate Social Responsibility portfolio. New Zealand has the highest number of threatened indigenous species in the world.²¹

- ▶ Partnership with Ngāti Koata and the Department of Conservation for the Moawhitu lake and wetland regeneration project
- ▶ Partnership with the Rotokare Scenic Reserve Trust protecting the endemic hihi bird (stitchbird) in this reserve located just outside of New Plymouth
- ▶ Partnership with Tiaki Te Mauri o Parininihi Trust in North Taranaki for monitoring the endangered kōkako bird

2021 Actions

In 2021, we began mapping all of our sites in a formal and harmonized way to determine if any are located in internationally protected areas. We will aim to disclose the results of this mapping in the coming years. We also continued to implement biodiversity initiatives, such as our green areas project in Tunisia. Our locations in Tunisia are in a dry and arid climate with hostile living conditions and a lack of recreation areas. The project's objective is to plant indigenous trees and shrubs in the desert. In 2020, a project was started in Waha, where 512 trees have been planted. In 2021, this was expanded to Nawara. There, 1,200 trees were planted in the first year. An irrigation system has been installed to support the budding plants. The goal is to provide recreation areas to improve the well-being of personnel and visitors, and to promote forest creation.

Outlook

We aim to develop a formal biodiversity and protected areas policy in the coming years.

Non-GHG Air Emissions

Exposure to air pollution can affect everyone's health. It is the greatest environmental threat to public health globally. The World Health Organization (WHO) recently issued stricter recommendations on safe air pollution levels in a bid to curb the millions of premature deaths and loss of millions more healthy years of life caused by air pollution.

Specific Policies and Commitments

The OMV Group Environmental Management Standard stipulates that all OMV Group businesses and activities must understand the impacts of their air emissions on local and regional ambient air quality. Air emissions are required to be monitored, controlled, and minimized in order to mitigate the potential for human health effects and harm to the environment. There are strong legal requirements surrounding air emissions in the EU, where all of our refineries are located. For instance, the EU does not permit the use of fuels containing sulfur to prevent transport-related SO_x emissions.

Management and Due Diligence Processes

Monitoring

In all our refineries, we monitor emissions of pollutants such as SO_x, NO_x, CO, particulate matter/dust, and (NM)VOCs as required by European and national legislation and the respective permits. If emissions are found to be in excess of nationally prescribed limits and/or limits defined in a permit, additional monitoring stations are installed, and measures are implemented.

Prevention and Treatment

OMV has long implemented technologies to reduce emissions, such as internal floating roofs to reduce emissions of VOCs. We have been focusing on upgrading such technologies to ensure that they are still doing their job and reducing emissions. For instance, in 2007, we commissioned a SNO_x flue gas cleaning plant at the Schwechat refinery. With the SNO_x Refurbishment of Wet Sulfuric Acid (WSA) program, in which a solution patented by OMV (two-layer PFA film structure with monitoring system) was implemented, both the reliability and the availability of the flue gas cleaning system could be increased. The flue gas cleaning plant at the Schwechat refinery is used for the removal of dust, and for denitrification and desulfurization of flue gases from the two power plants before they are emitted via the stack. In a first process step, dust is separated via electrostatic precipitators. In the course of selective catalytic reduction, nitrogen oxides (NO_x) are converted into free nitrogen (N₂) and water (H₂O) by injecting ammonia (NH₃). In the third step, sulfur dioxide (SO₂) is oxidized with the aid of a catalyst and reacts with residual moisture to form gaseous sulfuric acid. Finally, the sulfuric acid is condensed in the WSA by means of air cooling and heat recovery. The sulfuric acid thus obtained is then either sold or used for pH adjustment within the refinery. Through these process steps, 98% of dust can be separated, more than 96% of sulfur can be recovered, and around 90% of NO_x emissions can be prevented. With a catalyst update in autumn 2022, a NO_x reduction rate of around 95% will be achievable again.

²¹ Source: Environment Aotearoa 2019, Ministry for the Environment, <https://environment.govt.nz/publications/environment-aotearoa-2019/>



2021 Actions

The following key activities were carried out across the Group in 2021:

- ▶ At the Petrobrazil refinery, the tank modernization program continued in 2021 and included installation of internal floating membranes or double sealing for six volatile product tanks and commissioning of one new tank, according to BAT. These measures amounted to EUR 12.5 mn and contribute to the reduction of the environmental impact due to VOCs.
- ▶ In addition, OMV Petrom continued to restore sites that were formerly fuel terminals. This work can generate dust (from excavation, loading, soil treatment on the bioremediation platform, and earth fillings) and odors (from hydrocarbon vapors accumulated in the soil). The challenge was to minimize the dust and smell nuisance from a project site located in a sensitive area (with residential neighborhoods). Among the best practices applied were a water spray curtain,

dust protection nets, forced ventilation, and off-site bioremediation of the most contaminated soil. In addition, we minimized dust-producing activities in periods of strong wind along with more intense wetting of the surfaces as well as covering the surfaces on the on-site biopiles. We optimized the transportation routes to minimize nuisance to the community, covered the load, washed the wheels at the site exit to avoid contamination of public roads, and sprinkled the access roads on-site. There was periodical communication with the community and the authorities, and the relevant local authorities performed weekly site visits.

Outlook

In 2021, we launched a pilot project to develop an Odor Management Plan for one representative facility at an E&P OMV Petrom asset. We estimate that we will finalize this pilot project in 2022.

Circular Economy

Material Topic: Circular Economy

Decoupling economic growth from resource constraints by recovering and reusing byproducts or waste to make new materials and products, such as recycled or biobased polyolefins.

Key GRI

- ▶ GRI 306: Waste 2020

NaDiVeG

- ▶ Environmental concerns

Most relevant SDGs



OMV Group believes that transitioning to a circular economy will significantly reduce our impact on the environment and our CO₂ emissions. A circular economy decouples economic growth from resource constraints, while preventing the leakage of waste into the environment as much as possible and, in particular, into oceans as well as landfills. The circular economy will also curb global warming. Through the efficient use of our precious resources, we can recover and reuse byproducts or waste to make new materials and products. This approach has the potential to greatly decrease associated emissions across product value chains. In addition to recycling plastic waste and reusing it to make new materials and products, OMV Group also sees plastics based on renewable feedstock as playing a key role in the circular economy. The

use of renewable feedstock lowers the demand for fossil feedstock and considerably decreases the carbon footprint. OMV Group focuses on utilizing waste biomass such as forestry residues that are not in competition with the food and feed chain, and thus do not require the use of additional natural resources such as land or water. If then recycled, such second-generation bioplastics can play a vital role in a sustainable circular economy and reduce greenhouse gas emissions on two fronts, cutting emissions in the input and in the end-of-life phase.

The creation of a truly circular economy also has wider societal implications. It will provide economic benefits to society by reducing the major financial burden of ineffective waste management systems and pollution man-



agement, and will create new business opportunities and employment at various stages of the value chain. A circular economy will also result in better living and working conditions, and in general in a cleaner environment.

Following the acquisition of a majority stake in polyolefins producer Borealis in 2020 and the consolidation of Borealis into the Chemicals & Materials segment, circular economy is now a cornerstone of the OMV Group's Strategy 2030. OMV plans to produce 350 kta of recycled polyolefins by 2025. By 2030, that number will grow to 2,000 kta of sus-

tainable polymers or other chemicals, in other words, polyolefin products or other chemicals derived from plastic waste (either through a mechanical or chemical recycling process) or from biobased feedstock. At the same time, the use of fossil resources will decrease, as we aim to reduce oil and gas production levels to below 400 kboe/d and reduce crude distillation throughput by 2.6 mn t by 2030. These fossil resources would ordinarily also be used to make polymers; instead, more polymers will be based on recycled waste or renewable resources such as bio-feedstock.



Target 2025

- ▶ Achieve 350 kta recycled polyolefins production

Target 2030

- ▶ Achieve approximately 2,000 kta sustainable (includes recycled and biobased) polyolefins production

Status 2021

- ▶ 91 kt of circular material (recyclates and biobased material) sold via Borealis
- ▶ Production capacity of 100 kt established at Borealis

Relevant SDGs



SDG targets:

8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

Through Borealis, the OMV Group is promoting the circular economy across the industry, by launching initiatives and participating in activities and platforms that drive recycling options and solutions. Borealis is a core partner in the New Plastics Economy (NPEC) and a signatory to the "A line in the sand" initiative of the Ellen McArthur Foundation. Borealis has also endorsed the Ellen MacArthur Foundation's position paper on Extended Producer Responsibility (EPR). In addition, Borealis is a member of the EU's Circular Plastics Alliance and has signed a manifesto calling on UN member states to commit to the development of a global treaty on plastic pollution.

The OMV Group's goal is to develop a leading position in the circularity of plastics and to offer its customers innovative solutions that advance the circular economy. To transition to a truly circular and carbon-neutral economy, a variety of solutions will be required to keep products circulating at their highest value, quality, and utility over many lifetimes. We aim to achieve circularity through the following hierarchy:

Design for Eco-Efficiency

This means adopting a design mindset from the start that sets the agenda for minimizing the use of resources and maximizing their lifetime value. The Borealis foam busi-



ness is a prime example of eco-efficient polyolefin solutions. This business line is used in industries such as packaging, sports, transportation, and construction, and helps facilitate the transition to a circular economy as it is especially suited for ultra-lightweight foam applications while being fully recyclable.

Reuse

The Chemicals & Materials business helps maximize the lifetime of products already in circulation by leveraging knowledge of plastic use and processing, and by establishing systems and business models for reuse. We have been engaging with start-ups and participating in collaborative projects to develop and advance our position on the topic of reuse. For example, Borealis has been working with a Finnish start-up, Kamupak, to accelerate the use of reusable takeaway packaging in Helsinki (Finland). In December 2021, Borealis announced that it has acquired a minority stake in Bockatech, further deepening the existing partnership between the two companies. Bockatech Eco-Core® is a patented manufacturing technology that improves sustainability by creating lightweight, insulated, durable, and recyclable packaging for single-use and reusable applications. The combination of Borealis' polypropylene material and Bockatech technology is empowering the creation of low-cost reusable food and non-food packaging.

Design for Recyclability

One of the biggest issues preventing greater recycling of plastics is that many products are not designed for recycling in the first place. For example, flexible packaging often uses layers of different materials, which makes separating and recycling the plastic content extremely difficult. The challenge is to create packaging using only one (mono) material, while maintaining or improving performance.

The recycling of plastic packaging therefore begins with design. Design for Recyclability (DfR) means designing a product so it can be collected, sorted, and recycled. DfR is an important aspect of eco-efficient design, which takes a lifecycle approach by carefully and intelligently balancing the production, use, and after-use phases of a product.

Inspired by the EU Commission's vision for increased levels of recycling and the targets of the Ellen MacArthur Foundation's New Plastics Economy Global Commitment, brand owners worldwide are committing to developing 100% recyclable, reusable, or compostable packaging solutions by 2025. Borealis works with partners to develop solutions that are fully recyclable. For instance, Borealis has worked with W&H, AMAT, and GEA Food Solutions to develop a monomaterial, cast polypropylene laminate, that is 100% recyclable. This is an ideal solution for the most demanding food packaging applications, because it

ensures a long shelf life and high temperature resistance. Borealis has also developed 10 Codes of Conduct for polyolefin packaging designers. These Codes help designers develop packaging materials that can be successfully recycled and used again, either in the same application or in other products. The Codes are being incorporated into assessment methodologies for recyclability, for example, in future modulated Extended Producer Responsibility (EPR) guidelines for packaging.

Closing the Loop

This will first be achieved with mechanical recycling, to make products with the highest possible value and quality. Through Borealis, OMV continues to work with partners to develop newer technologies for mechanical recycling, with the objective of delivering products with near-virgin quality where possible, and with the lowest carbon footprint. (Read more in [Mechanical Recycling](#).)

OMV also believes there is an essential role for chemical recycling to complement mechanical recycling. Chemical recycling can valorize residual waste streams from mechanical recycling, as well as mixed plastic waste streams which would otherwise go to a landfill or be incinerated. (Read more in [Chemical Recycling](#).)

OMV remains fully committed to advancing the development of a broader and more circular offering. In the coming years, we will step up our design-for-recycling and reuse businesses for polyolefins, and develop and implement a sustainable product portfolio based on biobased polyolefins.

During 2021, the OMV Group, through Borealis, sold 91 kt of recyclates while succeeding in establishing a production capacity of 100 kt. The OMV Group's circular economy targets, including ramping up production of recycled plastics, will help transition from a model based on the extraction of fossil resources toward one based on closed materials loops. To support this transition, Chemicals & Materials is building up its Borcycle™ portfolio (including both Borcycle™ M based on mechanical recycling processes and Borcycle™ C using chemical recycling technology) to meet growing demand for high-quality recyclates that help producers and brand owners meet environmental and regulatory challenges.

OMV also works to reduce plastic leakage. In 2017, Borealis initiated Project STOP (Stop Ocean Plastics) in Indonesia. Co-founded with SYSTEMIQ, this program aims to achieve zero leakage of waste into the environment and increase plastics recycling. Project STOP focuses on the regions with the highest leakage rates and, with the support of industry and government partners, works hand in hand with cities to create leak-free, low-cost, and more circular



waste management systems. (Read more in [Community Investments](#) and on the [Project STOP website](#).)

Governance

Circular economy has been on the OMV Group agenda since 2015, having become even more important since the acquisition of a majority stake in Borealis in late 2020. Several circular economy areas, such as mechanical and chemical recycling, are now jointly being further developed. We are in the process of building up our Group governance of this material topic. The Group's circular economy strategy is closely intertwined with the decarbonization strategy and is overseen by Strategic Planning & Projects. We have also begun establishing dedicated departments, such as the Plastic-to-Plastic department within Chemicals & Materials.

Most of the OMV Group's circular economy initiatives, especially regarding mechanical recycling and circular products, are run by our subsidiary Borealis. To accelerate its transformation to a circular model, Borealis has a dedicated department called Circular Economy Solutions and New Business Development. This department leads the execution of Borealis' circular economy strategy around several thematic project focus areas, such as feedstocks for recycling or design for recyclability, as well as assisting all

Mechanical Recycling

The versatile properties of plastics make possible a plethora of products and applications that make daily life safer, more mobile, and more eco-efficient. These properties allow us to ensure more sustainable living, while the global population grows and demand for plastics increases. However, within the linear economic model, plastic products are made, used, and then discarded. Continuing with this model will lead to more plastic waste and environmental pollution, while putting pressure on the planet's limited resources.

As a plastics producer, we are responsible for the end of the value chain as well. We aim to develop technologies to recycle the many different types of plastics as efficiently as possible, thereby promoting a circular economy. One key technology is mechanical recycling. With mechanical recycling, the plastic is cleaned, mechanically flaked, melted down, and processed into plastic granulate. In the ideal case, this material can be used to make the same products again, i.e., a detergent bottle becomes a new detergent bottle. No change is made to the chemical structure of the plastic, which is why the feedstock must be sorted properly and even split into different colors. Through [Borealis, OMV operates three mechanical recycling plants: Ecoplast, mtm plastics](#), and a demo plant operated by a joint enterprise in Lahnstein (Germany).

other Borealis business areas with industry-specific transformation. Another dedicated business team is fully focused on short- to mid-term business growth opportunities in mechanical recycling, including Borealis' mtm plastics and Ecoplast businesses. The Circular Economy Innovation Studio at Borealis' Innovation Headquarters in Linz remains Borealis' spearhead for technology and innovation. In 2018, Borealis launched a dedicated communication platform, EverMinds™. This platform serves to streamline all Borealis' circular-economy-related activities in order to boost their impact and promote familiarity with the topic. The platform facilitates deeper collaboration between Borealis and its partners in the interest of developing innovative and sustainable polyolefin solutions based on the circular model of design for circularity, reuse, and recycling. Further details on Borealis' specific initiatives, management and governance, and development of circular products can be found in the [Borealis Annual Report](#).

We undertake a variety of initiatives to raise awareness among employees on recycling. For instance, we published several internal blogs and held expert talks for employees on how to identify recycling codes and how to recycle the different types of plastics.

Management and Due Diligence Processes

Certification

The Borealis recycling businesses are all EuCertPlast certified. The EuCertPlast certification is a European-wide certification program for companies that recycle post-consumer plastic waste.

Business Transformation

A business transformation project was launched at the established Borealis recycling businesses, mtm plastics and Ecoplast, to tackle profitability improvement areas in mechanical recycling. The product offering of mtm plastics and Ecoplast was significantly changed to target recycling solutions in the value-added packaging film applications segment and Borcycle™ compounds, for example.

2021 Actions

A key part of OMV's circular economy strategy is the development of an advanced mechanical recycling business through Borealis. At the start of 2021, Borealis and its partners, TOMRA and Zimmermann, opened their state-of-the-art mechanical recycling demonstration plant in Lahnstein (Germany). The plant processes both rigid and flexible plastic waste from households. Unlike many current recycling plants, it will produce advanced solutions featuring a



high level of purity, low odor, high product consistency, and light color fractions necessary for use in highly demanding plastic applications in industries such as automotive and consumer products. The purpose of the demonstration plant is to generate material for brand owners and converters to validate for use in their highly demanding applications. Technical success will set the groundwork for a commercial-scale advanced recycling plant.

Chemical Recycling

Another form of recycling is chemical recycling. Chemical recycling comes into play when mechanical recycling reaches its limits, for example, if multiple types of plastics are used together in several layers in a product. While most rigid plastic waste can be processed quite well through mechanical recycling, flexible materials (e.g., plastic film) are still predominantly incinerated or sent to landfill. OMV's chemical recycling technology is an answer to this challenge. Chemical recycling involves changing the mechanical composition of the plastic to produce synthetic crude from plastic waste. This synthetic crude can then be used to make any type of plastic or product. Because it is effectively comparable to virgin plastics, it can also be used in tightly regulated areas such as the food and medical industries. Plastic waste thereby becomes a valuable raw material.

OMV has been exploring the potential for utilizing post-consumer plastics – polyethylene, polypropylene, and polystyrene – through chemical recycling since 2011. The Austrian Research Promotion Agency has also contributed to this effort with subsidies covering part of the project investment. The first test facility was launched in 2013. In 2018, the next-level test facility – the ReOil® 100 pilot plant – began fully refinery-integrated operation with a processing capacity of up to 100 kg per hour and a production capacity of up to 100 l of synthetic crude per hour.

The synthetic crude produced is processed further into monomers in the steam cracker at our Schwechat refinery to produce high-quality base materials for the plastics industry. At Borealis, these monomers are then converted into high-grade polymers. Borcycle™ C represents the portfolio of chemically recycled polyolefins that Borealis is offering to the market. It provides an important alternative to energy recovery and is suitable for very demanding applications such as food-contact materials.

Management and Due Diligence Processes

The innovative ReOil® process converts used plastics into what is known as synthetic crude oil under moderate pressure and normal refinery operating temperatures. This

Outlook

In the coming years, OMV will focus on the commercial ramping up of its existing circular portfolio to continuously progress toward its targets. This includes further investments in the advanced mechanical recycling facility in Lahnstein (Germany) to increase recycled material capacity.

synthetic crude oil ("Syncrude") is then being used to produce base materials for the plastics industry.

Selection of Feedstock

The ReOil® facility is able to process different forms of plastic wastes, ranging from household waste to waste from commercial and industrial sources. The main feedstocks are polyethylene (e.g., films), polypropylene (e.g., food packaging, car parts), and polystyrene (e.g., packaging and insulation materials). Currently, the recycled feedstock is sourced almost exclusively from Austrian waste sorting facilities. In the future, OMV is planning to emphasize the inclusion of flexible plastic waste that is currently not recycled but rather incinerated and which cannot be mechanically recycled.

Technology

Plastic is an excellent heat isolator with poor heat transfer, compared with glass or metal. These properties that make plastic desirable in everyday life make it difficult to break down. OMV's proprietary ReOil® technology is based on pyrolysis, a well-known refinery process during which thermoplastics are first melted and then cracked at a temperature of about 400°C. This means that long-chain hydrocarbons are cracked into shorter-chain light hydrocarbons. One of the inherent challenges in pyrolysis stems from the fact that (compared with glass or metal), plastics are notoriously difficult to melt and once melted, are highly viscous, which impairs the heat transfer necessary for pyrolysis. The ReOil® technology is unique compared to those of competitors because of the use of an innovative heat transfer technology which allows us to reduce the molten plastic's viscosity and thus improve heat transfer. As a result, the ReOil® process is scalable to industrial scale (up to 200 kta). Due to the integration into OMV's refinery in Schwechat, ReOil® further achieves higher yields than other non-integrated chemical recycling technologies.

Certification

The ReOil® pilot plant is ISCC PLUS certified. The ISCC PLUS certification ensures circular content and standards across the value chain from source to end product. This means that for each ton of circular feedstock fed into the



ReOil[®] plant and substituting fossil materials, a certain proportion of the output can be classified as circular. This is called the mass balance approach.

Emissions Reduction

In its initial study, Austria's ministry of the environment found that substituting crude oil with post-consumer plastics is estimated to reduce CO₂ emissions by 45% and lower energy demand by 20% compared with using fossil resources. In 2021, OMV commissioned a lifecycle assessment to determine the CO₂ reduction potential of its ReOil[®] chemical recycling technology versus incineration. At the time of publication of this Report, the LCA was undergoing peer review.

2021 Actions

The following key activities were carried out across the Group in 2021:

- ▶ The final investment decision (FID) was made to build a prototype of a ReOil[®] demonstration plant at an intermediary refinery scale with a processing capacity of up to 2,000 kg per hour. This plant called ReOil[®] 2000 will be fully operational in 2023. Like the pilot plant, the ReOil[®] demo plant will be ISCC PLUS certified. To finance this project, OMV entered into its first-ever green loan agreement. This is aligned with the green loan principles and is based on a green and project-specific external due diligence appraisal, called a second party opinion, and a project-specific green financing framework.
- ▶ Borealis has entered into a partnership with Renasci N.V., a provider of innovative recycling solutions and creator of the novel Smart Chain Processing (SCP) concept, to increase its chemical recycling offerings. The SCP concept is a proprietary method of maximizing material recovery to achieve zero waste. It is unique, because it enables the processing of multiple waste streams using different recycling technologies, all under one roof. At the newly built Renasci SCP facility in Oostende (Belgium), mixed waste is automatically selected and sorted multiple times. After sorting, plastic waste is first mechanically recycled. Any remaining material is chemically recycled into circular pyrolysis oil and lighter product fractions, which are used to fuel the process. Sorted non-plastic waste is further processed using other technologies. At the end of the process, only 5% of the original waste remains, which is then used as filler in construction materials. The extremely efficient processing reduces

the carbon footprint of these waste streams by more than 30%. As part of the agreement, Borealis will source a projected 20 kt of circular pyrolysis oil annually from Renasci's Oostende facility. Borealis also plans to purchase mechanically recycled material. Having acquired a 10% stake in the company, Borealis will collaborate closely with Renasci to evolve and scale up the SCP technology. This includes developing facilities that would source their feedstock entirely from household waste.

- ▶ In April 2021, Borealis began a feasibility study for establishing a chemical recycling unit at its location in Stenungsund (Sweden). The aim is to secure an increased supply of chemically recycled feedstock for increased production of circular base chemicals and polyolefin-based products. The study is partially funded by a grant from the Swedish Energy Agency and is being carried out with Stena Recycling. It will evaluate the optimal technology for the chemical recycling unit and its integration with the cracker at Stenungsund. Stena Recycling will recover plastic waste and, after sorting to remove materials suitable for mechanical recycling, will deliver it to the new chemical recycling unit. Subject to a successful feasibility study and final investment decision, operations are expected to begin in 2024.
- ▶ Borealis has partnered with Swiss dairy company Emmi and Greiner Packaging to produce Emmi CAFFÈ LATTE drinking cups using chemically recycled polypropylene. Emmi is Switzerland's largest milk processor and has set a goal to make all of its packaging 100% recyclable. It is also committed to promoting circularity, such as packaging that contains at least 30% recycle by 2027. From September 2021, Emmi CAFFÈ LATTE will use at least 100 t of plastic based on the recycled material each year. The chemically recycled material used for the cup consists entirely of ISCC PLUS certified material on a mass balance basis.

Outlook

Since the first ReOil[®] trials in OMV's own laboratory, there has been a lot of development work happening. The ReOil[®] 2000 plant will go into full operation in 2023 with a capacity of 16 kt per year. In a next step, the OMV ReOil[®] process is being developed into a commercially viable technology on a large industrial scale by 2026. At that time, up to 200 kt of plastic waste will be processed per year.



Renewable Feedstock

Together with partners, OMV is actively pursuing the development of industry-scale projects to produce bio-fuels, biochemicals, and bioplastics from waste biomass. Waste biomass such as agricultural, forestry, and wood processing residues, or mixed municipal waste is not in competition with the food and feed chain. While the conversion of such waste biomass to high-value products is often technically challenging, the related benefits are a significant reduction in CO₂ compared with fossil-based fuels and local resource utilization that creates value.

In this section, we focus on plastics based on renewable feedstock. For more information on energy products based on renewable feedstock, please refer to [Energy Transition](#).

Management and Due Diligence Processes

Certification

In 2020, Borealis introduced the Borneables™ product range. Unlike renewable feedstocks produced with agricultural crops grown for food and livestock feed, Borneables™ are made of renewably sourced feedstocks derived solely from waste and residue streams from vegetable oil production as well as oil waste and residues from the timber industry and from the food industry, for instance, used cooking oil. The entire Borneables™ portfolio has been ISCC PLUS certified.

Life Cycle Assessment

With the new life cycle assessment published in 2021, Borealis demonstrated that Borneables™ is especially suited to reducing carbon emissions. The assessment showed that the greenhouse gas emissions of Borneables™ polypropylene produced at Kallo and Beringen (Belgium) go beyond carbon neutrality and can be reduced by at least 120% from cradle to gate (meaning all the steps from the sourcing of raw materials to products leaving Borealis' production site) compared to fossil-based polypropylene. According to the LCA's findings, using Borneables™ substantially reduces a product's carbon footprint by at least 2.7 kg CO₂e for every kilogram of

polymer. This is possible while offering the same high performance levels as virgin polyolefins and the ability to be recycled in the same way.

2021 Actions

The following key activities were carried out across the Group in 2021:

- ▶ In July 2021, Borealis conducted a physical-content test run of the Borneables™ produced with measurable renewable content of bio-propane (via controlled blending) in the propane dehydrogenation unit in Kallo. Since the successful test run, Borealis has been able to supply its customers with Borneables™ polypropylene. Its physical renewable content is fully measurable according to the carbon-14 method for biogenic carbon content in addition to offering mass balance for the manufacture of sustainable polyolefins.
- ▶ In 2021, Greiner Packaging produced its first cup prototypes made of Borneables™. By using Borealis' Borneables™ portfolio, Greiner Packaging has for the first time incorporated renewable resources into the production of food cups made of polypropylene (PP) with in-mould labeling (IML) as the decoration technology. The new prototype IML cups for dairy products are made of Borneables™ monomaterial and were developed to be recycled as normal in conventional facilities in line with the principle of design for recycling.

Outlook

By 2030, we aim to produce approximately 2,000 kta of sustainable polymers and other chemicals, including biobased polyolefins. To achieve this, we will build up capabilities for the procurement of sustainable feedstocks and develop and implement a sustainable product portfolio for biobased polyolefins.