

## Products and services

Every year, Grupa LOTOS and the LOTOS Group's trading companies take a number of measures to reduce the impact of their products and services on the environment.

**Grupa LOTOS** meets the highest European standards relating to compliance with the laws and regulations concerning addition of biocomponents to motor fuels. In 2011, Poland had one of the highest biocomponent targets in the European Union, set at 6.20% (calculated on the basis of fuel calorific value). In 2011, the Company met the target by achieving a 6.25% biocomponent content in its fuels.

Given the specific nature of **LOTOS Petrobaltic's** business, which consists in the exploration for and production of crude oil and natural gas, the company's priority is to ensure effective protection against the risk of sea pollution by spills of extracted crude oil and other substances used in the extraction process, and to limit to the minimum the environmental impact of such spills, should they occur. LOTOS Petrobaltic has in place an Oil Spill Response Plan for spills resulting from the exploration and production work carried out by Petrobaltic within its licence areas. The plan has been approved by the Maritime Office in Gdynia. In 2011, LOTOS Petrobaltic took part in an oil spill response exercise together with the Maritime Search and Rescue Service. Moreover, the condition of the environment is constantly monitored prior to, in the course of, and after the completion of operations. Appropriate management of waste from platforms and seagoing vessels is also very important given that the ban on discharge of any waste or pollutants from platforms has become one of the key policy objectives. Therefore, in 2011, the relevant procedure was updated and an industrial shed for hazardous waste was built within the onshore base.

Similarly, **AB LOTOS Geonafta** uses only drilling techniques which do not cause any damage to the environment. The company is also actively involved in the reduction of gas emissions: gas obtained during the mining of crude oil is used to generate electricity and heat for the production installations.

LOTOS Petrobaltic, through its subsidiary **Energobaltic**, owns a combined heat and power plant in Władysławowo which is fired by fuel gas obtained in the process of separation of gas transmitted from the offshore platform. This has led to the elimination of tens of thousands of tonnes of air emissions per year as a result of liquidation of boiler plants (mainly coal fired) in Władysławowo and ending the practice of flaring waste gas at the platform.

In 2011, **LOTOS Paliwa** continued its investment projects designed to mitigate the negative environmental impact of the operations of the LOTOS service stations. The projects implemented by LOTOS Paliwa included: installation of separators, upgrade of stormwater, sanitary and industrial sewerage systems, installation of leak-proof surfaces, installation of gasoline fume absorption systems, installation of equipment to measure and monitor petroleum product stocks, installation of leakage alert systems for detecting leakage of petroleum products into soil, surface water and underground water, installation of soil contamination monitoring equipment, replacement of single-jacket tanks with double-jacket tanks and replacement of air-conditioning units.

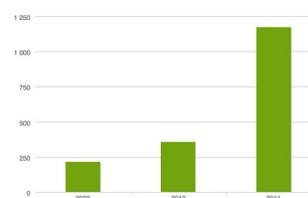
In 2011, LOTOS Paliwa launched a new environmental protection project to use renewable energy by installing heat pumps at new service stations located in the Motorway Service Areas along the A1 motorway and S3 expressway. The heat pumps use renewable energy from ambient air and transform it into energy used to provide heating and hot water in buildings.

In 2011, **LOTOS Kolej** launched a major investment project involving the upgrade and overhaul of the rail tanker cleaning facility. The project-related work will continue until August 2012. Once completed, the project will substantially reduce the environmental impact of the cleaning facility and significantly improve the Health and Safety at Work conditions. Air sealing of the technological processes, changing the technology for cleaning rail tankers and utilising modern equipment in the cleaning process will lead to lower consumption of utilities and reduced generation of oily wastewater.

In 2011, LOTOS Kolej recorded a 16% increase in the consumption of energy for non-traction purposes (to 2,053 MWh) relative to 2010 (1,760 MWh). The increase followed from the expansion of its operations which led, among other things, to the need to use more equipment. In order to reduce electricity consumption, lighting systems were provided with automatic controls. New electronic ignition and ballast units for high-pressure discharge lamps fitted with a microchip controller are also being tested.

In 2011, at the **LOTOS Oil's** production branch in Czechowice-Dziedzice, nine tanks with capacities from 50 to 200 cubic meters, used for raw material and finished product storage, were fitted with double bottoms and a leakage alert system. Repair of three tank trays to prevent penetration of petroleum-based products into the soil was also completed. Similar preventive work was also performed under the tracks and the road located near the road tanker loading facility in

Quantity of waste generated by LOTOS Kolej [tonnes]



Czechowice.

In 2011, **LOTOS Parafiny** purchased new product pumps and an emulsion homogenizer for its facilities in Jasło. The replacement of those units allowed the company to eliminate pollutant penetration into the environment. The upgrade of the railway loading facility in Czechowice-Dziedzice, commenced in 2011, will be completed in Q1 2012. The upgrade involves the replacement of loading arms with rigid units employing a system of counterweights. This will completely eliminate pollutant penetration into the environment.

In line with **LOTOS Asphalt's** strategy adopted in previous years, measures were initiated in 2011 to eliminate hydrocarbon emissions from the production, storage and dispatch of bitumens, which generate olfactory nuisance, chiefly within the production sites. The projects already completed in pursuance of the strategy include: installation of a process gas thermal oxidiser, air sealing of tanks and connection of air-sealed tanks and bitumen filling terminals to the thermal oxidiser – in Jasło, as well as inclusion of two double-station car tanker filling terminals and two double-station rail tanker filling terminals in the fume extraction system, connection enabling disposal of extracted fume in thermal oxidisers and construction of a stand-by filling process-extracted fume disposal unit in activated charcoal adsorbers – completed in Gdańsk. EU funding was secured for the project designed to reduce emissions of odorous hydrocarbons in Gdańsk. Once the project has been fully completed (in 2013), the air quality at the production site in Gdańsk will improve significantly. The upgrades of production facilities in Gdańsk and Jasło have improved their efficiency, while markedly reducing the energy intensity per unit of production.

In the case of many products manufactured by the LOTOS Group companies, their effect on the environment during production and after the end of their useful lives is not negative. The same is true of the packaging in which products are marketed. In accordance with the applicable laws and regulations, the individual LOTOS Group companies have contracted recovery organizations to perform their obligations related to the recovery and recycling of packaging materials introduced on the domestic market.

**LOTOS Paliwa** does not sell products in packaging which is subject to the recycling/recovery requirement. However, the company's service stations sell packaged products containing hazardous substances. After being used, the packaging containing traces of such substances becomes hazardous waste, which customers may leave at the station. At service stations which sell automotive and general-use batteries, there are special designated areas for storage of hazardous waste in the form of general-use batteries (in special containers provided by suppliers) and automotive batteries (in areas designated by the station's management, which is not accessible to unauthorised persons). The handling of hazardous waste at service stations is governed by the internal waste management procedure.

In 2011, a repeated analysis of the quantity of waste generated by **LOTOS Kolej** was performed. Based on the results of the analysis, the company applied to the competent authorities for amendment of its waste generation permit to allow for increased waste generation.

The 227% increase in the quantity of waste generated by LOTOS Kolej is due mainly to the ongoing work on the upgrade and overhaul of the rail tanker cleaning facility and the construction of a new building near the facility. An increase of over 11% in cargo transport and reclamation work commenced on areas leased by the company were also factors affecting the 2011 figure.

In 2012, LOTOS Kolej plans to perform an upgrade of its industrial sewage pipeline to reduce the risk of sewage penetration into the environment, and to construct a water treatment plant to eliminate drinking water from the industrial process.

**LOTOS Asphalt's** products (bitumen and heavy fuel oil) are mostly transported in tankers. Packaged products include tar paper produced at the waterproofing materials production site (Zakład Materiałów Hydroizolacyjnych) in Jasło, as well as bitumens and pitches in primary packaging, also used for waterproofing purposes. Sales of primary packaging bitumens and pitches accounted for less than 0.1% of the overall bitumen sales by LOTOS Asphalt in 2011. 55% of all packaging was recovered.

The recovery and recycling rates achieved by the recovery organization contracted by **LOTOS Oil** in 2011 were as follows: waste oil – recovery at 50%, including recycling at 35%; plastic packaging waste – recycling at 19%; paper and cardboard packaging waste – recycling at 54%; steel packaging waste – recycling at 37%; wood packaging waste – recycling at 15%; total packaging – recovery at 55%, and recycling at 40%.

The recovery and recycling rates achieved by the recovery organization contracted by **LOTOS Parafiny** in 2011 were as follows: plastic packaging waste – recycling at 19%; paper and cardboard packaging waste – recycling at 54%; steel packaging waste – recycling at 37%; wood packaging waste – recycling at 15%; total packaging – recovery at 55%, and recycling at 40%.