

## Development plans

The most important challenges for the refinery business are related to the climate and energy package of the European Union.

In the coming years, the operating segment's activities will focus on efficient use of the expanded processing capacities brought by the successfully completed investment programme. Additionally, efforts to introduce natural gas as a process fuel at the refinery's units are to be completed, which will have a positive effect on greenhouse gas emissions and will allow us to launch new petroleum products.

The Company is also preparing for an overhaul shutdown in 2013, i.e. shutdown of primary and auxiliary units in order to carry out periodical maintenance, cleaning, equipment repairs and replacement, technical inspection, and catalysts replacement.

For the refinery business, the most important challenges at the moment are those related to the climate and energy package. Regulations comprising this package introduce comprehensive approach to greenhouse emissions management across in the entire EU and are aimed at achieving EU's objectives for prevention of climate change adopted by the European Council in March 2007. Implementation of the directive of November 24th 2010 on industrial emissions (2010/75/EU) and review of the BREF reference documentation and BATs outlined therein may necessitate changes to the maximum values of harmful emissions from process furnaces allowed under the integrated permit.

In 2012, the new legal framework related to meeting of the National Indicative Target will be important for Grupa LOTOS, as will other regulations, including proposed directives relating to the climate package, i.e. amendments to the energy law, amendments to the act on biofuels or the act on renewable energy sources. Also, new taxation on minerals' production is expected, which may have a significant impact on the performance of the upstream segment.

For the implementation of renewable energy sources in transport, Grupa LOTOS will pursue the National Indicative Target within the limits set by relevant regulations. Planned introduction of diesel oil with the 7% admixture of bio-components will help reduce the costs of meeting this statutory obligation.

It seems probable that, due to new regulations enabling a reduction of the National Indicative Targets, a significant number of entities will take advantage of their statutory rights, which will result in a decreased amount of bio-components and biofuels made available on the market in 2012 compared to 2011. This may favourably affect fuel prices, as there will be less pressure to offset the high prices of bio-components added to fuels.

Projects launched in 2011 will be continued in the coming years. The key projects include:

- construction of xylene separation and reformate splitter unit: separation of xylene fraction from reformate will reduce the share of noxious aromatics in engine gasolines blended at the refinery, in line with prescribed standards and environmental protection trends. Sales of xylene will complement or replace sales of reformate, which is currently the method of reducing the share of noxious aromatics in gasoline products,
- replacement of furnaces at the furfural extraction unit and the hydrodesulphurisation and gasolines separation unit: both projects are aimed at improvement of energy efficiency and safety levels of the units and the entire refinery,
- extension of a high pressure gas pipeline to connect it to the refinery: the project is designed to connect the refinery with the high pressure gas grid and use gas as a component for hydrogen generation and a fuel for the refinery's fuel gas network and CHP plant; use of natural gas will significantly reduce emissions of gases (CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>) and dust to the atmosphere,
- construction of a flare gas recovery unit designed to reduce atmospheric emissions of gas pollutants and the plant's energy intensity. The project will consist in construction of a unit redirecting part of the gases from the discharge pipeline to the refinery's fuel gas system to fuel process furnaces,
- air-tight sealing for tanks of the wastewater treatment plant – stage 2: the project, which is the continuation of the project executed in 2009-2010, is designed to mitigate the odour nuisance by sealing the air space of open tanks of the wastewater treatment plant and utilisation of degassing products on bio-filters.

The most important new projects launched in the previous years and continued in 2012 include:

- construction of a Vapour Recovery Unit (VRU) at the railway tank filling facility in Gdańsk: the project involves construction of a recovery unit for vapours originating during the filling process and improvement of the existing VRU's capacity. The project is implemented in connection with the expected increased utilisation of the filling facility, as well as of environmental protection regulations imposing new obligations for air-tight sealing of petroleum products filling process, including filling of products other than gasolines (Regulation of the Minister of Economy of November 21st 2005 on technical conditions to be met by liquid fuel bases and stations, long-distance transmission pipelines which transport petroleum and petroleum products, and their

locations),

- Energy Trading Risk Management: the ETSM system is the key element enabling efficient trading and risk management activities, which significantly reduces the operational risk inherent in real and financial transactions related to trading in raw materials and products, as well as currency hedging,
- transfer of production control systems from the Central Control House to a building that can withstand an outside explosion. Apart from the concentration of control station and operator equipment in one place, the project involves construction of a building with cloakroom for 290 shift employees of three complexes,
- upgrade of the liquid gases separation unit: the project is to increase the unit's production capacity, which will in turn enable the use of all process liquid gases to produce LPG suitable for use in winter conditions,
- construction of a river bank loading and unloading terminal: the project is to increase logistic capability and efficiency through the use of barges and small vessels to transport refinery products and imported fuel components. Completion of the project will facilitate dispatch and collection of certain products in quantities larger than it is possible with the use of rail tanks. The project will also relieve the current load on the filling facilities and rail transport, and will enhance flexibility of our efforts to attract new customers (both domestic and foreign).

Design and concept work will be continued to define the scope of further expansion of the Gdańsk refinery, which is to involve the addition of a heavy residue gasification unit. Its aim is to minimise the production of heavy fractions, as it has a negative impact on the refinery's margin. The concept work will focus on better use of paraffin fraction from mild hydrocracking (MHC) in production of fuels and lubricant oils, through construction of a new unit to separate paraffin fraction and include it in the refinery's technological configuration, which will be related to future work designed to upgrade and change the manner in which the Oils Unit is utilised.