

Key risks, opportunities and challenges in the context of sustainable development

Grupa LOTOS has adjusted its strategy to the changeable market conditions and global macroeconomic threats.

Risks are inherent in the nature of Grupa LOTOS's business. The Company is gradually improving its tools and methods used to identify and assess the risks. It is worth noting that, relative to previous years, the Company has been able to consistently reduce the expected level of certain operational, financial and market risks. This has been possible thanks to such developments as the launch of new installations constructed as part of the 10+ Programme and progressive implementation of measures mitigating the identified operational risks.

Risks and opportunities in the context of the government's and the European Union's strategy for the petroleum sector

Legal risks in Grupa LOTOS' operations arise from the Polish government's normative acts and EU directives. In order to identify legal risks, the Company monitors the European Union's policy with respect to the petroleum sector and cooperates on a regular basis with government authorities responsible for the preparation and implementation of governmental strategies for the sector. The Company issues opinions on drafts of EU and Polish legal acts, and monitors relevant regulations, concerning in particular mandatory stocks of crude oil, fuels, bio-components and biofuels.

In 2011, the key risk in the area of **biofuels and bio-components** was associated, like in the previous year, with the failure of Polish authorities to transpose into national law the provisions of Directives 2009/30/EC and 2009/28/EC of the European Parliament and of the Council of April 23rd 2009. In January 2012, the notification procedure was completed for domestic regulations allowing a higher bio-component content in standard fuels (B7). Introduction of the possibility to use diesel oil with a 7% ester content (B7) had been long expected as in previous years the National Indicative Target (NIT) required by law exceeded the level possible to achieve by adding 5% of bio-components to diesel oil (B5) and gasoline (E5). Admission of the B7 diesel to the market significantly improves the economics of the Polish biofuels policy. As a result of amendments to the Polish regulations in 2011, the use of higher quantities of bio-components in gasoline (E10) is no longer allowed. Due to the lack of legal solutions in the directives and the annual increase of the National Indicative Target (NIT), Grupa LOTOS is forced to market higher volumes of unprofitable biofuel B100. The planned act allowing the use of the E10 gasoline in Poland should mitigate the risk in 2013. The 2011 statutory regulations enacting the NIT reduction as of 2012 entail the risk of imposing financial penalties on entities attaining the NIT for potential breach of the act by suppliers.

In Poland, the National Indicative Target is attained exclusively through the use of bio-components and biofuels. As bio-components and biofuels are more expensive than mineral fuels, achieving the target level has a tangible effect on transport energy costs, leading to higher fuel prices. The adverse effect of the biofuel policy on transport fuel prices is further exacerbated by the fact that the NIT set in Poland significantly exceeds the average target levels attained in other EU countries.

Pursuant to the amended Biofuels Act of May 2011, upon fulfilment of certain statutory requirements concerning the source of origin of bio-components, entities obliged to attain the NIT may in 2012 lower the target level by a reduction ratio of 0.85. Under this solution, it is possible to reduce (relative to the 2011 levels) the content of bio-components and biofuels in the total volume of transport fuels, which will have a positive impact on fuel prices in Poland.

Although the amendment is a step forward, Grupa LOTOS is convinced that stronger measures need to be taken and that the NIT should be determined on the basis of fuel quality standards, so that the legally required content of bio-components and biofuels in transport fuels in the coming years does not exceed the bio-component content in standard fuels. A level of the NIT higher than provided for in the fuel quality standards necessitates the introduction of 100 per cent biodiesel (B100) to the market, as it happened in previous years. Given the current fuel prices, the use of B100 must be minimised, as its market launch will have even more adverse financial effects than the use of bio-components in standard fuels.

While in 2012 the application of the NIT reduction ratio and approval of the B7 use since February will contribute to minimising the sale of B100, next year it will be impossible due to the growing NIT level.

Therefore, it is expected that the next step will involve launch of gasoline with a 10% bioethanol content (E10) and approval of the oil co-hydrogenation technology (co-HVO) in the production of diesel oil in Poland. It is also expected that the possibilities of achieving the NIT will be expanded to include the use of other renewable energy sources, such as biogas or

green power. At the same time, the Company waits for new generation of bio-components to be commercially available at competitive prices.

The European Commission's proposals aimed at changing the **energy taxation system**, including transport energy, are designed to make tax rates depend on fuel's calorific value and CO₂ emissions. Such modifications may entail the risk of altering the structure of transport fuel demand by 2020, as a result of changing of diesel oil, gasoline and LPG prices. The new system assumes that the price of gasoline to be the base price, while diesel oil tax will be higher than gasoline tax by 15%. LPG taxation will increase fourfold relative to the current EU minimum tax rates.

The planned introduction of **new tax solutions concerning the extraction of minerals** involves the risk of deterioration of the E&P segment's performance.

Additionally, the European Commission is working on **improving safety of hydrocarbon off-shore production**, which may increase production costs.

The timing and scope of changes of the existing legal requirements concerning **mandatory stocks** are unknown. The date when mandatory stocks may start to be taken over from market operators by relevant governmental agencies, as well as the speed of the process have not been specified yet. Draft assumptions to the amended Act on Stocks of Crude Oil and Liquid Fuels have been included in the list of documents put on legislative hold, and by the Council of Ministers' decision of February 15th 2011, continued work on the draft requires approval by the Prime Minister. As the Act on Mandatory Stocks must be amended in 2012, following the implementation of Directive 2009/119/UC of the Council of the European Union, there is a significant risk that the legal regulations will not be aligned with the industry's requirements, given the short time left for preparing the amendment.

However, the risks associated with the implementation as of 2013 of **more stringent CO₂ emission requirements** and with changes to the rules governing the allocation of CO₂ emission allowances should be taken into account at this point.

Given the increasingly complex geopolitical situation, there is a potential risk of crude oil supplies becoming unavailable at acceptable prices due to **the lack of sufficient storage capacities**. Storage facilities in salt caverns may be a solution for the future. However, their construction depends on the decision of the Polish government administration.

The **prolonged legislative process** in Poland entails another serious risk – the impossibility to predict the dates when legal regulations become effective and the related consequences of such uncertainty for the Company and the entire industry.

Risks associated with changes in and interpretations of tax laws

Grupa LOTOS operates in a highly unstable legal environment. A source of risk, the instability affects our functioning, the course of action taken, our tax policies, and the amounts of tax payable.

Changes in the interpretations of tax laws may give rise to tax risk in transactions where such risk was non-existent before. An additional hurdle is the indolence of tax authorities in their handling of applications and conducting tax proceedings. The differing interpretations of tax rules increase business uncertainty and, as regards international trading, may tarnish our reputation as a reliable partner and force the Company to give up on valuable projects or transactions.

The tax risk faced by businesses in Poland is high. One of the risk factors is non-observance by the legislator of the *vacatio legis* principle while enacting amendments to tax laws. This prevents businesses from adjusting to the new requirements on time and increases the likelihood of incurring additional costs or sanctions. Rather strict standards of the Polish tax authorities are another factor that calls for extra caution when managing tax risks. In doing business, an entrepreneur has to reckon with the risk that an erroneous interpretation of the law, a human error on the part of its employee or incompetence of civil servants may inadvertently result in tax arrears, as a consequence of which it may face charges of committing an offence.

Given the frequent interpretive changes and enactment of new legal regulations, which are often inconsistent, convoluted or incompatible with the EU laws, Grupa LOTOS reviews and updates its internal procedures on an on-going basis to ensure compliance with the requirements and to identify and mitigate any tax risks, and in particular their effect on the Company's financial statements.

In situations where a tax risk related to a possibility of disparate interpretations is identified, Grupa LOTOS avails itself of the right to request a binding interpretation of tax law by the Minister of Finance. Furthermore, the Company, as a member of Poland's major organizations of employers and entrepreneurs, takes a role in issuing opinions on draft legislation. This is primarily aimed at improving the quality of tax legislation, but also allows to adequately respond to any changes in the legal environment.

Financial risks

In 2011, the former Financial Risk Management Committee at Grupa LOTOS was replaced by the Price Risk and Trading Committee responsible for the oversight and coordination of the price risk management process and for monitoring and coordination of trading activities requiring cross-segment interaction.

The powers of the Financial Risk Management Committee in the area of currency risk, interest rate risk and credit risk management have been vested directly in the Chief Financial Officer. In addition, a Team for liquidity optimisation and coordination of financing has been set up to coordinate and supervise key efforts in the area of liquidity risk management, arrangement of financing, and debt structure management at the LOTOS Group.

The key financial risk faced by Grupa LOTOS is **the risk related to prices of raw materials and petroleum products**. We continue research and work on a new policy for managing the risk, which ties in closely with our plans to upscale trading operations. Concurrently, to enable implementation of specific price risk management processes, streamline management functions and improve security of operations in the broad price risk and trading area, the Company has launched the process of selecting a new Energy Trading and Risk Management system.

Currency risk is managed in line with the Strategy of Currency Risk Management at Grupa LOTOS. The management horizon is determined in line with the rollover budgeting period. The US dollar (USD) is the currency of Grupa LOTOS' operating market. Consequently, the Company has a structurally long position in USD on its operating activities. Therefore, the US dollar was chosen as the most adequate currency for contracting and repaying long-term loans, including loans used to fund the 10+ Programme.

Interest rate risk management is connected with the expected schedule of payments under the loans taken out to finance inventories and the implementation of the 10+ Programme, and the resulting interest accruing at floating rates (LIBOR USD).

The risk related to prices of carbon dioxide (CO₂) allowances is managed in line with the objectives set forth in the Strategy for Managing the Risk Related to Prices of CO₂ Allowances by Grupa LOTOS. The management horizon is determined by the particular phases of the Kyoto protocol; the current management horizon runs until the end of 2012.

Liquidity risk is subject to weekday monitoring which involves collecting and analysing data in respect of projected cash flows and the financing sources available now or in the future.

Based on results of the analysis, appropriate working-capital decisions are taken whose aim is to match maturity dates of assets and liabilities as closely as possible and to secure and retain access to diverse sources and forms of internal and external financing. Efforts are currently being taken to centralise liquidity management within the LOTOS Group.

The risk of restricted access to external financing or changes in lending terms is minimised by entering into cooperation with a diversified group of creditworthy partners, using the largest possible range of financial instruments in day-to-day operations, the correct, complete and timely fulfilment of disclosure obligations, monitoring of and compliance with the financial ratios, covenants and any other obligations towards banks stipulated in the outstanding loan agreements. We also monitor the financial position and overall standing of the banks financing the activity of the LOTOS Group, as well as any factors driven by developments on the global financial markets that may threaten our ability to raise financing.

Management of counterparty credit risk in financial transactions consists in monitoring of credit exposures in relation to the limits granted. Our counterparties must have an appropriate credit rating, assigned by leading rating agencies, or hold guarantees from institutions meeting the minimum acceptable rating requirements. Grupa LOTOS enters into financial transactions with reputable firms with sound credit standing, and diversifies the group of institutions with which it cooperates.

As regards **management of credit risk relating to counterparties in non-financial transactions**, all customers who request trading on credit terms are subject to credit assessment, whose results determine credit eligibility. The responsibility for taking credit decisions rests with employees in charge of finance at the LOTOS Group companies.

In order to ensure that the financial risks are effectively managed and to minimise the risk of error, all data used to support the process are thoroughly verified, and decisions are based on in-depth analyses, in accordance with the adopted risk management policy, credit structure and operating procedures. The financial risk management policies and instruments and the impact of risk factors on the individual items of financial results are entered in the Notes to the financial statements. [Link → \(http://raportroczny.lotos.pl/en/financial-data/consolidated-financial-statements-2011/notes-to-the-financial-statements/\)](http://raportroczny.lotos.pl/en/financial-data/consolidated-financial-statements-2011/notes-to-the-financial-statements/)

Risks related to the exploration and production business

Risks related to the upstream business include production and technical risks, exploration risks, risks related to the geological characteristics of the fields and weather-related risks, all of which are monitored. The year 2011 saw continued implementation of adequate mitigation procedures.

Considering the nature of our operations, the LOTOS Group's key concern are the **risks associated with production of hydrocarbons** which have the potential for environmental contamination. These include risks of oil spills, marine collisions, fires, gas eruptions and other failures. A broad range of preventive measures are taken, such as leakage testing, monitoring of fire risks and blow-out risk prevention, for example by securing the boreholes. Additionally, procedures have been put in place applicable in day-to-day work and when a threat of failure occurs. An important measure helping to reduce the risk is the provision of regular training courses and practical exercises for the personnel. In the event of an incident or accident, a thorough analysis is conducted, and the event itself is discussed at the training courses, with a view to preventing its recurrence.

Technical risks are associated with the equipment used to explore and produce hydrocarbons. It is mitigated through monitoring of the condition and performance of the equipment, as well as technical supervision and performance of necessary tests. Regular training courses are also organised to teach the personnel how to operate the equipment. The production and

process systems are subject to technical inspections, reliability testing and related risk assessment. With due regard paid to the nature of our operations, the maintenance management system is being developed and the prevention-centred approach is being furthered through on-going monitoring of the best available technical solutions.

Exploration risk follows largely from potentially incorrect estimation of in-place resources. Therefore, in line with the SPE 2007 rules three confidence levels are used to estimate a reserve: P10, P50 and P90 (with the estimated quantity having, respectively, a 10%, 50% and 90% probability of being recovered). Also, the internal chance-of-success indicator is analysed while estimating the potential of an area covered by geological survey. Moreover, in the design phase there is the risk of having to conduct additional, in-depth geological analyses of plays with high production potential. One example is the 3D seismic surveying carried out in the first half of 2011 on the PL 503 and PL 503B North Sea licenses.

Other risks in the upstream area are related to possible occurrence or intensification of phenomena which may cause loss of wells or declines in well rates (e.g. falling reservoir pressures, entry of water). The risk is reduced with the use of methods involving continuous monitoring of reserve parameters. Weather is a vital factor in offshore oil extraction. In extreme cases, unfavourable weather conditions may halt planned work or crude production. To reduce adverse effects of risks that materialise, systems have been deployed to monitor the weather conditions and to trigger appropriate safety procedures when necessary.

Guided by the need to increase the volumes of own production from new licenses and to implement projects under consortium agreements, the Company takes steps to secure as exhaustive data and research as possible. Project-related risk assessment, market research, due diligence, feasibility studies, and legal and financial risk analyses are performed to effectively minimise the risk inherent in joint ventures, particularly those in which LOTOS Petrobaltic holds minority interests.

Risks related to the supply of raw materials

Grupa LOTOS continually strives to diversify the directions and sources of oil supply. The objectives of the diversification policy are attained by placing focus on security of supplies and improved competitiveness. Security of crude supplies is enhanced through progressive expansion of our presence on the international oil market, regular contracting of various types of crude transported by sea, creating conditions to radically increase their share in total supplies to the refinery, and increasing the role of own production. Our competitive position is improved by fully capitalising on the coastal location of the Gdańsk refinery and the possibility to source crude supplies through two independent channels: Russian oil through the Druzhba Pipeline and various types of oil available through Naftoport (offshore oil terminal).

An appropriate selection of types of crude and directions of supplies is the result of efforts to maximise the integrated margin. Moreover, diversification-related risks, including risks related to potential disruptions at multiple sources of oil supply, are identified and mitigated.

Risks related to operating activities

The management of risks related to the Company's operating activities covers various areas: process- and technology-related risks, workplace safety and environmental risks, and legal risks relating to the respective areas.

The year 2011 was the first year when the Gdańsk refinery operated in the target configuration provided assumed in the 10+ Programme. This was possible following commissioning of the last two process units delivered as part of the 10+ Programme: the MHC hydrocracking unit (commissioned in January) and the SDA/ROSE unit (commissioned in March). Upon completion of the programme's implementation phase, the **operational risks related to the 10+ Programme** identified earlier were either reduced or eliminated. Measures taken to identify and minimise the key risks yielded the desired effect, as confirmed during the test run carried out in May in the presence of representatives of licensors and contractors.

A key risk of the 10+ Programme related to the operation of the Gdańsk refinery at the beginning of 2011 was the uncertainty of results of the integrated system test run at maximum capacity, as required under the loan agreements and supervised by bank inspection representatives and technical consultants. The results of the test run held in June 2011 were in line with the targets agreed with the banks.

However, it should be remembered that the risk of possible discovery of latent defects in procured materials or equipment during operation continues, although probability of any such occurrence is becoming increasingly lower. Any materialisation of the risk may disrupt the plant operation, pose threat to its safety and cause fire or explosion hazards. As no serious defects were discovered during commissioning, start-up, initial operation, and regular operation of the MHC and SDA/ROSE units until the end of 2011, the risk of latent defects has been reduced to low and is managed through planned maintenance and monitoring of the process infrastructure on a daily basis.

Grupa LOTOS' operating activities entail certain **environmental risks**, the most important of them being:

- risk of failure to comply with the requirements of the Polish and EU environmental laws,
- risk related to shortage of CO₂ emission allowances,
- risk of serious industrial failure (described in detail further in this Report).

The likelihood that the risk of non-compliance with the legal requirements might materialise is minimised through on-going monitoring of the Polish and EU laws, efficient implementation of their provisions and taking an active and effective role in the

legislative process. The processes of obtaining permits are carried out with a sufficient time reserve, taking into account the risk that administrative proceedings might last longer than expected.

Grupa LOTOS makes every effort to mitigate the risk related to CO₂ emissions allowances. Legislative changes at the level of Polish and EU laws are monitored on a routine basis. Cooperation is also maintained with the National Administrator of the Emissions Trading Scheme.

For the refining units which participate in the EU Emissions Trading Scheme, including units constructed as part of the 10+ Programme and commissioned in 2010, the number of allowances will be sufficient until the end of the current trading period, i.e. 2012. Additional allowances were granted for the CHP, whose emissions have increased in connection with the need to supply heat necessary to support the operation of the above units. Grupa LOTOS applied for emissions allowances from the national reserve for the last two 10+ Programme units commissioned in 2011. The allowances were awarded in the middle of the year.

One of the key risks inherent in our day-to-day operations, addressed with specifically designed preventive and preparatory measures, is the **risk of industrial failure**. Emergency events may disrupt the work of refining units, cause fire, explosion, excessive emissions of pollutants into the environment or occupational work. Various comprehensive measures have been deployed to monitor the technical condition of the plant and equipment and to prevent failure. Appropriate technical standards and procedures are in place, including qualified supplier and technical service lists or deliveries collection and control procedures, to ensure high quality of overhaul and project delivery services and guarantee high quality of materials and spare parts used.

Grupa LOTOS also carries out criticality analyses of the equipment, as part of which it identifies and assesses risks and implements appropriate action plans for individual items of equipment, depending on their degree of criticality. Most of the equipment critical for the operational safety has been classified based on the following criteria: safety for people and the environment, significance relative to the entire unit or plant and failure probability. The classification of a piece of equipment to a specific criticality group determines the selection and application of an optimal strategy for the equipment maintenance.

The units delivered as part of the 10+ Programme have been in full commercial operation for more than a year now, and hence, thanks to experience gained so far and regular inspections, the risk of latent defects or maintenance or repair errors is gradually decreasing. Conveniently, the new units allow us to reserve large portions of the existing capacity. Hence, a failure occurring in one unit does not affect the operation of the entire plant, and the refinery may continue operation without any major disruption.

A factor contributing to an increased risk of failure on the new units is the personnel lacking adequate experience. A number of measures have been taken to address the risk, including a policy whereunder new unit operators are employed long, even two years, in advance to enable them to go through the entire training process before new units have been commissioned. As in 2010, Grupa LOTOS purchased training simulators, state-of-the-art operation training tools, an industrial equivalent of flight simulators used in aviation. The simulators are used to train personnel in unit operation under conditions very close to reality.

The refinery also uses technologies and equipment meeting the BAT (*Best Available Techniques*) criteria. Process units are equipped with safety and protection solutions, including multi-layered security systems (prevention, protection and counteraction layers). Alarm, emergency stop and shutdown systems are deployed in order to prevent uncontrolled development of an emergency situation and serious damage to the plant and equipment.

In order to mitigate the effects of failures, practical training and exercises are provided on a regular basis to all employees of the refinery, to ensure prompt and effective response to any actual failures. If a failure does occur, it is subject to a thorough analysis and relevant preventive measures are implemented as a follow-up. Gathered information is used in subsequent assessments of the technology-related risk.

Given the nature of the production processes, **workplace safety** is a matter of utmost importance for the Company. Many jobs are exposed to hazardous or noxious factors, which is why each job is assessed in terms of inherent occupational risks, including risks related to explosive atmosphere, noise or presence of hazardous chemical and biological substances. Based on such assessment, individual and collective security systems are deployed.

New technical and organizational measures are also in place to ensure safe working conditions for all persons staying or working on the premises of Grupa LOTOS. Regular checks of the correct implementation of relevant procedures are undertaken and follow-up requirements are enforced. In many cases, the rules implemented at Grupa LOTOS are more stringent than those required by law.

Risk of stricter quality requirements for petroleum products

Grupa LOTOS keeps a close eye on the proposed new standards and regulations relevant for its production and sales. The source of information about future changes in the quality requirements is Technical Committee 222 at the Polish Committee for Standardisation, responsible for petroleum products and process liquids. Through its participation in the work of the subcommittees of Technical Committee 222, the Company is able to present its opinions on proposed EU standards as early as at the stage of their development.

Grupa LOTOS may also have a say on quality requirements, in particular requirements applicable to engine fuels, through participation in the works of an industry association, the Polish Organisation of Oil Industry and Trade. The participation substantially reduces the risks of delayed compliance with future quality standards for petroleum products.

Marketing risks

The background for the LOTOS Group's marketing activities is the ever-present price competition and the fast-changing global macroeconomic environment. This requires constant refinement of tools used to monitor price- and margin-related parameters. As for retail sales, we pursue market diversification, including diversification into segments less prone to competitor-induced margin erosion, as well as other initiatives aimed at winning and retaining customers.

Grupa LOTOS also manages **the risk of reduced domestic demand** for its products. Lower demand may be an effect of increased price competition or overall decline in demand due to macroeconomic factors. The risk is managed using various techniques, including diversification of distribution channels, operation of a competitive pricing policy and optimisation of operating expenses.

Risk management in the marketing area is also focused on maintaining uninterrupted supplies of products to the market. These efforts are coordinated at the Company level by ensuring cooperation between marketing, logistics, production, trading and optimisation functions, and the objective behind these efforts is to set a coherent, most favourable course of action across the supply chain.

Costs of implementation of hedging strategies

For high-cost mitigation measures, we apply the ALARP (*As Low As Reasonably Practicable*) principle whereby risks are reduced to a level as low as reasonably practicable. Risks are considered acceptable if it is impossible to reduce them any further or if the costs of their reduction outweigh the benefits to be gained. Any hedging strategies, including plans to mitigate risks or transfer them (e.g. by way of insurance), are therefore implemented following careful analysis, focused especially on the expenditure that would need to be incurred.

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