



Stability and sustainable growth

LOTOS Group
Integrated Annual Report 2016

PDF version



LOTOS Group
Integrated Annual Report 2016

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ABOUT US

About us > Letter from the President of the Management Board

Letter from the President of the Management Board

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Ladies and Gentlemen, Dear Shareholders,

It is my pleasure to present the 2016 Integrated Annual Report of the LOTOS Group.

Last year saw strong volatility in commodity and currency markets, but despite that, LOTOS posted its best financial performance on record. Consolidated LIFO-based EBITDA, normalised to remove one-off items, reached almost PLN 2.6bn, 20% up on 2015.

Consolidated LIFO-based EBIT soared 175% year on year, to PLN 1.9bn. In 2016, consolidated net profit exceeded PLN 1bn, a level yet unseen by the Company. To compare, for 2015 LOTOS reported a consolidated net loss of PLN 0.3bn.

In 2016, LOTOS achieved a record oil throughput of almost 10.4 million tonnes. The Gdańsk refinery ran at close to 100% capacity utilisation, and we sold over 11m tonnes of refined products.

Our throughput and sales rose as a result of strong refinery margins continuing throughout most of 2016, which were partly due to the first effects of successful legislative efforts to curb the grey fuel market in Poland (the First Fuel Package coming into force in August 2016).

The strategy adopted by the Management Board for the years 2017–2022 sets a clear direction we want to follow in the years to come. Stability and sustainable growth across key areas of business, combined with strong support for innovation lie at the heart of the Company's strategic plans. The strategic objectives are to be pursued within two time frames: 2017-2018 and 2019-2022. The initial years are for achieving economic and financial stability and completing projects currently in progress: EFRA (Effective Refining) and full development of the B8 field in the Baltic Sea. The pace of growth in the second strategy period, from 2019 to 2022, will hinge on key strategic decisions concerning new upstream and downstream capital investment projects.

LOTOS pursues a strategy designed to reduce Poland's dependence on crude oil imports from one source. This necessitates increasing imports by sea and expanding our own upstream capabilities. In 2016, we maintained daily production from our assets in Norway, Poland and Lithuania at 26.5 thousand barrels of oil equivalent and increased our total recoverable reserves to 72.7m boe (up 9% year on year), mainly through field development on the Norwegian Continental Shelf.

In the past year, LOTOS continued to make progress on construction of the refinery plant complex under the Effective Refining (EFRA) project. After the project is completed, LOTOS will be able to increase its supplies to customers by up to 900,000 tonnes. The EFRA project will also help to improve our refining margin per barrel of crude oil processed by some USD 2.



At the end of 2016, the LOTOS retail chain comprised 487 stations, with 11 new locations added during the year. At the end of 2016, LOTOS operated a total of 20 service stations along the A1, A2, A4 and A6 motorways and the S3 and S7 expressways, maintaining second position on the market in terms of the size of its motorway service station network.

Our other important objective is to increase R&D and innovation spending. We aim to complete the ongoing expansion projects in each business segment, as well as to optimise and increase the efficiency of the Group's operations. We will explore and select optimal growth scenarios to be able to implement them smoothly to the benefit of our customers, shareholders and employees.

With kindest regards,



Marcin Jastrzębski

President of the Management Board,
Grupa LOTOS S.A.

About us > Letter from the Chairwoman of the Supervisory Board

Letter from the Chairwoman of the Supervisory Board

[G4-1]

2016 was a challenging year for the global oil industry. All major oil companies in Poland and globally struggled with commodity and currency market volatility and with wide price swings in petroleum product markets.

Amid this unfavourable backdrop, the LOTOS Management Board was able to significantly boost operating profitability of the entire Group and optimise costs through organisational restructuring. The financial performance and oil throughput rates posted by LOTOS for 2016 were its best on record.

Diversification of Poland's oil supply sources is vital to the country's energy security. LOTOS leads the way in diversification, with every third barrel of oil processed at the Gdańsk refinery in the first quarter of 2017 originating in regions other than Poland's neighbouring countries to the east.



As regards the retail market for petroleum products, LOTOS deserves recognition for its successful efforts to expand the size and enhance the profitability of its service station chain.

LOTOS is poised for further growth underpinned by the strategy for 2017–2022 that was adopted late last year, which places a focus on achieving financial stability, completion of the ongoing capital investment projects, innovation support, and entry into new areas of petroleum refining and marketing.

I am confident that 2017 will be a time for LOTOS to peacefully and efficiently manage the resources it has built over the years and to implement more positive change for the Group and Poland's economy.

With kind regards,

A handwritten signature in black ink, appearing to read 'B. Kozłowska-Chyła', written in a cursive style.

Beata Kozłowska-Chyła,
Chairwoman of the Supervisory Board
Grupa LOTOS S.A.

About us > Key information about the organisation

Key information about the organisation

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The LOTOS Group is one of Central and Eastern Europe's major and most efficient oil companies and the second largest producer of fuels in Poland. The coastal location of our plants ensures direct access to the sea, resulting in greater flexibility of feedstock supply and reduced costs of logistics in maritime transport.

The LOTOS Group is the only producer in Poland with access to hydrocarbons in Poland's Exclusive Economic Zone of the Baltic Sea. Other regions where we are engaged in petroleum production include the Norwegian Continental Shelf and Lithuania (onshore). As a vertically-integrated organisation, the LOTOS Group operates based on two reporting segments: Upstream and Downstream.

As at December 31st 2016, the LOTOS Group comprised Grupa LOTOS S.A. as the Parent, and 35 production, trading, and service companies, including:

- 13 direct subsidiaries of Grupa LOTOS,
- 21 indirect subsidiaries of Grupa LOTOS,
- and one foundation.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 7.1.3. Ownership changes at the LOTOS Group

Key markets for our refined petroleum products include Poland and European countries such as Germany, the Netherlands, Belgium, Sweden, the United Kingdom, France, Estonia, Denmark and the Czech Republic.

Most of our associated natural gas produced from the Baltic Sea fields is sold to the LOTOS Group companies. Natural gas produced in Norway is marketed to the United Kingdom and Continental Europe, and the entire condensate volume is exported to the UK.

We have established a presence on 82 markets.

Grupa LOTOS is a joint-stock company with the State Treasury as the majority shareholder (53.2% interest). For more information on the Grupa LOTOS shareholding structure, see the Consolidated Annual Report of the LOTOS Group for 2016.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 9.1 Shareholding structure



LOTOS Group
Integrated Annual Report 2016

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OUR BUSINESS

Our business > Oil market in 2016

Oil market in 2016

Since supply and demand for petroleum products are strongly correlated to economic and political developments in the world, the oil market in 2016 was highly volatile. As a result, in Q1 oil prices hit their 10-year lows, falling below **USD 30 per barrel**. The price level was difficult to predict due to such factors as periodic supply and demand imbalances, conflicts in African countries (Libya, Nigeria), and the **growing number of production wells in the US**.

Last year saw **expansion of the global market for refined petroleum products**. According to forecasts continued economic growth, especially in the CEE countries, will drive global demand for refining products in the coming years.

> In total, global demand rose **1.4%** across almost all refined petroleum product categories.

In 2016, demand for gasoline, diesel oil, and LPG for road transport applications went up 2.1%, 0.1%, and 5.7% year on year, respectively. Consumption of JET aviation fuel also increased, by 3%.

Key drivers of the global market environment

OPEC output quotas

The continuing downward trend in crude oil prices was a source of major concern for most of the market players such as OPEC countries or Russia, whose budgets rely heavily on oil revenue. Having acknowledged the gravity of the problem, those countries took steps to halt the trend.

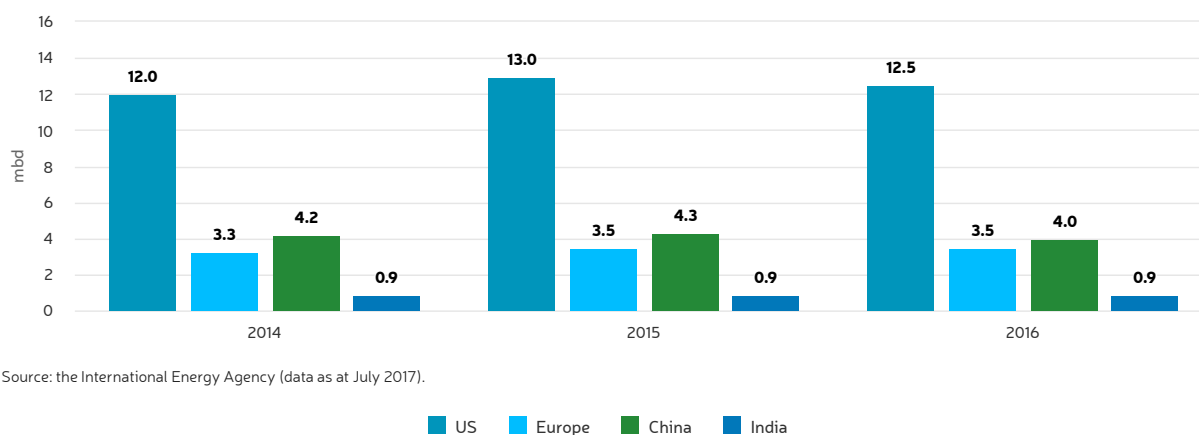
Rising production from shale gas deposits in the US

Globally, oil price growth is mainly tempered by rising production from shale gas deposits in the US, which is increasingly profitable due to reduced costs and technological progress. Unconventional production is also gaining popularity beyond the US.

Despite a decline in crude oil prices, production has remained high in the US since 2015. In Brazil, oil production from pre-salt reserves (5–7 km under the seabed) reached record levels in January 2017, and all indications are that there will be more oil from this source.

> Accumulating stocks of crude oil across the world, especially in the US, also put a damper on oil prices. Stocks of oil in the US have reached their highest level in the last 30 years, at 520m barrels.

Crude oil production in the US, Europe, China and India



Europe – demand up 2.2%

The economic upturn in the European Union and in the eurozone seen in 2016 led to increased demand for refined petroleum products, both aviation and automotive fuels. It is estimated that the aggregate demand for those products went up 2.2% on 2015. Consumption of JET aviation fuel, diesel oil, LPG, and light fuel oil rose 3.4%, 2.8%, 4.2%, and 0.9%, respectively. Lower demand was seen only in the case of gasoline (down 0.3%).

According to forecasts until 2022, the European market will grow, and total consumption of refined petroleum products is expected to go up by **1.3%**. This trend reversal has a significant impact on the Polish market.



In the period until 2020, a strong increase is expected in the EU's consumption of JET aviation fuel and diesel oil, of 11.9% and 3.8%, respectively. According to forecasts, demand for gasoline will decline markedly, by as much as 11.0%.

In 2016, the motor vehicles market in the European Union grew 7.4% compared with 2015. The number of new cars exceeded 20 million. The number of new cars registered in the EU rose 4.5% in 2016, with the total number of new registrations coming close to 15 million. The number of lorries also increased, by 11.7%, and new registrations in this category totalled more than 2.3 million.

At the same time, however, new solutions are being consistently launched on the market to reduce the consumption of conventional fuels, electromobility and alternative fuels being cases in point. The last decades were also a period of deep demographic changes (ageing population) and progressing evolution of consumer habits, leading to fewer consumers in the future. In consequence, demand for gasoline is expected to significantly decline in the EU by 2022 (down 11.0%).

Polish fuel market – the Fuels Package boosts official fuel consumption

In 2016, Poland's GDP was up 2.7%¹, driven by uptrends in manufacturing and construction. The unemployment rate at the end of 2016 was one of the lowest on record, at 8.3%². As a result, consumption rose across all product categories, including in the fuel market.

2016 was also the third consecutive year to see growth in official fuel consumption in Poland. It went up 13%, including: 15.5% for diesel oil, 7% for gasoline, and 1% (roughly on a par with the previous year) for light fuel oil.

Efforts to counteract the grey market in Poland, undertaken both by the government (the Fuels Package) and legitimate fuel suppliers, have reduced the market's size, additionally contributing to an increase in registered demand for diesel oil.

¹ Source: Central Statistical Office of Poland (GUS).

² Source: Central Statistical Office of Poland (GUS).



In the period from August to December 2016, official consumption grew **20.1%**, beating even the most optimistic of analyst forecasts. During that period **diesel oil** consumption rose the most, by 25.4%, which led to a 133% increase in diesel oil imports year on year.

To compare, **from January to July 2016** fuel consumption grew 7%, including diesel oil up 8% and gasoline up 5.6%.

Polish companies are leaders on the domestic retail fuel market (gasoline, diesel oil, and LPG) – their market share in 2016 was 33.1% (down 0.6 pp year on year). The share of international companies was also down (0.3 pp year on year), to 21.6%.

In 2016, the market for LPG (a substitute of gasoline) grew 8%, to 2,535 thousand tonnes. The LPG market in Poland may be described as mature, with annual consumption volumes at 2,200–2,300 thousand tonnes in each of the last five years. Consumption of aviation fuel in 2016 rose 11% on the back of the growing number of airline services, expansion of new airlines and a steady increase in the number of passengers.

Our business > The LOTOS Group – stability amid a volatile market environment

The LOTOS Group – stability amid a volatile market environment

- The LOTOS Group is committed to ensuring continuity of crude oil supplies at optimum prices and diversifying the supply sources.
- In 2016, the LOTOS Group reported higher sales of its products: they grew 6%, including 9% in the domestic market and 2% internationally.
- The LOTOS Group's strong performance was supported by the Fuels Package, whose introduction on August 1st 2016 boosted official fuel consumption in Poland by 20.1% in the period between August and December 2016 and 13% year on year.
- The LOTOS Group takes into account forecasts and megatrends which affect its business, including a global rise in consumption of aviation fuel and drop in consumption of gasoline by 2020.

Diversification of supply sources

The LOTOS Group is committed to diversifying its supply sources in order to ensure energy security for Poland. Our specialists do not look for the types of crude oil similar to those delivered from the neighbouring countries east of Poland, but those which yield more interesting products. Moreover, completion of the EFRA (Effective Refining) Project will further expand the range of crude types used at the refinery.

In the first half of 2016, every fifth barrel of oil (21%) processed by the LOTOS refinery was imported from sources other than countries east of Poland, while in the first quarter of 2017 it was almost every third barrel of oil (32%). This came as a result of our continuous efforts to ensure greater diversification of supply sources of raw materials strategic for the economy and to increase Poland's energy security.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 4.4.3. Procurement and supply

New markets

LOTOS Oil signed an agreement with Oupul Oil & Gas Group of China, and thus the LOTOS Group entered the largest market in the world. As much as 17,000 tonnes of premium quality lubricating (engine and industrial) oils manufactured by LOTOS Oil will be sold each year to Chinese customers in the next six years. Oupul Oil & Gas Group has declared its interest in a strategic and long-term cooperation with the LOTOS Group.

Sound performance of the LOTOS Group in Poland

Increased demand for refined petroleum products, mainly diesel oil and gasoline, in Poland and abroad drove up the LOTOS Group's sales of products to 11.9m tonnes in 2016, up 6% year on year, including 9% domestically and 2% internationally.

More information

[*Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016*](#)

Chapter 3. Macroeconomic environment of Grupa LOTOS S.A. and the LOTOS Group in 2016

Our business > The LOTOS Group – stability amid a volatile market environment > Our performance – discussion of the LOTOS Group’s financial position

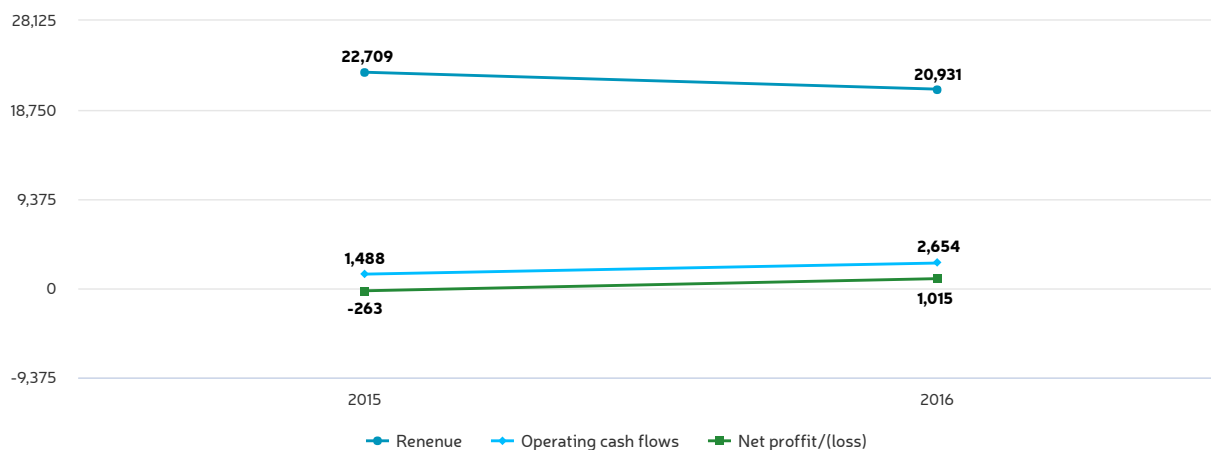
Our performance – discussion of the LOTOS Group’s financial position

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- In 2016, the LOTOS Group improved its operating performance again.
- Consolidated revenue amounted to PLN 20.9bn.
- Adjusted LIFO-based EBITDA was at a record high, at PLN 2.59bn.
- The LOTOS Group’s consolidated net profit was the highest on record and exceeded PLN 1bn.
- The LOTOS Group’s debt was reduced by a healthy PLN 4.8bn net.

At the LOTOS Group, we consistently strive to increase operational efficiency, which, coupled with the favourable macro environment in 2016, contributed to the LOTOS Group’s sound operating performance.

Strong financial performance, particularly cash flows

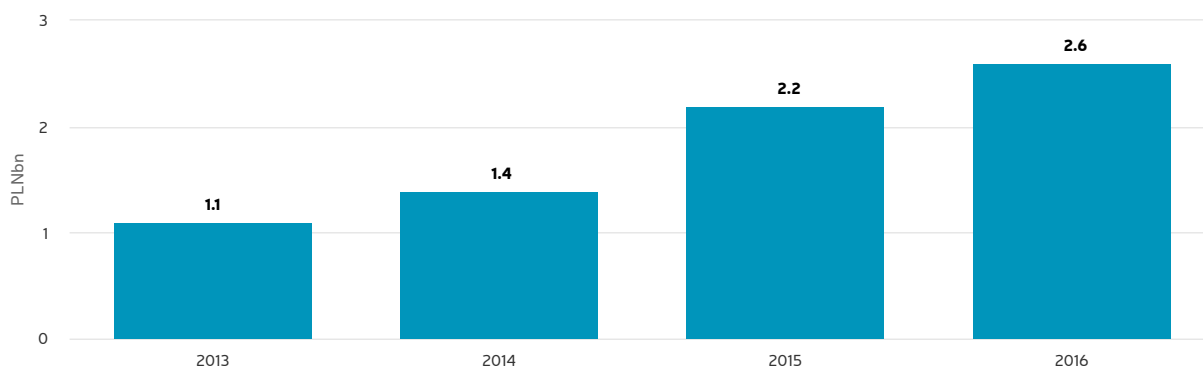


In 2016, the LOTOS Group **improved its operating performance again**. Consolidated revenue was **PLN 20,931m**. Adjusted LIFO-based EBITDA was at a record high at **PLN 2.59bn**. In 2016, the LOTOS Group earned a consolidated net profit of **PLN 1,015m**.

Record-high LIFO-based EBITDA

In 2012–2015, adjusted LIFO-based EBITDA averaged PLN 1.67bn, while in 2015 it grew to PLN 2.16bn and in 2016 to a record high of **PLN 2.59bn**. This continued growth of EBITDA lends credibility to the LOTOS Group’s objectives outlined in the new business strategy for 2017–2022: the target for 2018–2019 is average annual LIFO-based EBITDA of PLN 2.2–2.6bn, and we plan to increase it in 2020–2022 to **PLN 3.8–4.4bn**.

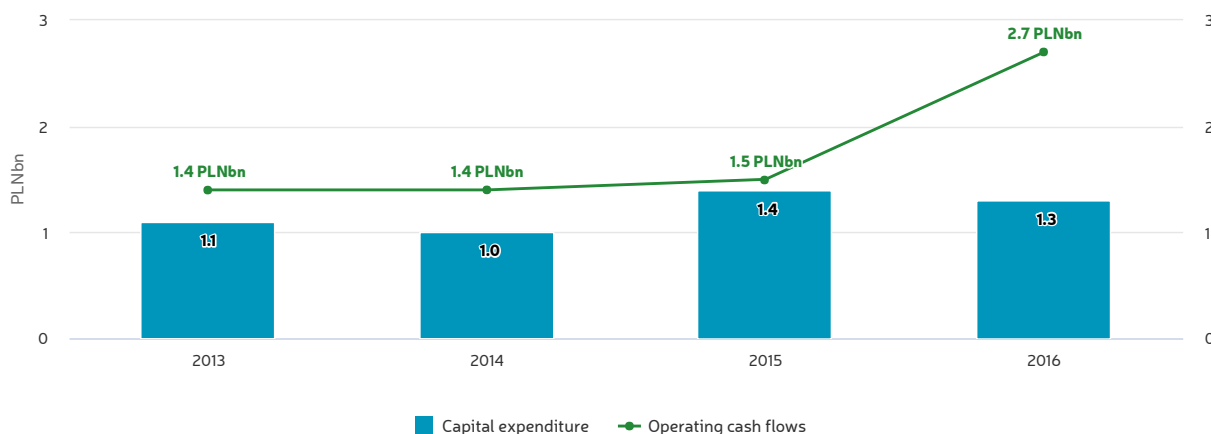
LIFO-based EBITDA



Strong operating cash flows

The LOTOS Group generated positive cash flows from operating activities of **PLN 2,653.9m** (up PLN 1,165.9m on 2015), mainly on net profit before depreciation and amortisation, income tax, and higher trade payables, which were offset by lower trade receivables. High-quality assets generate operating cash flows which are then used to finance business development projects.

Operating cash flows and capex



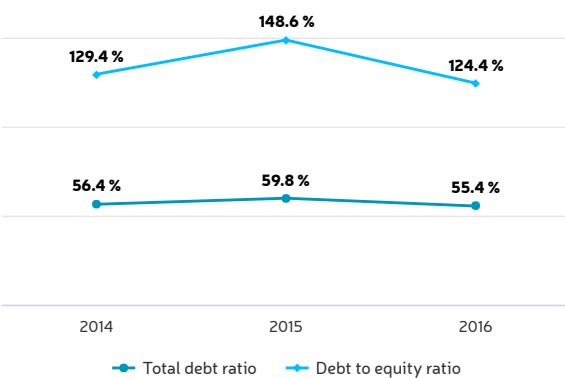
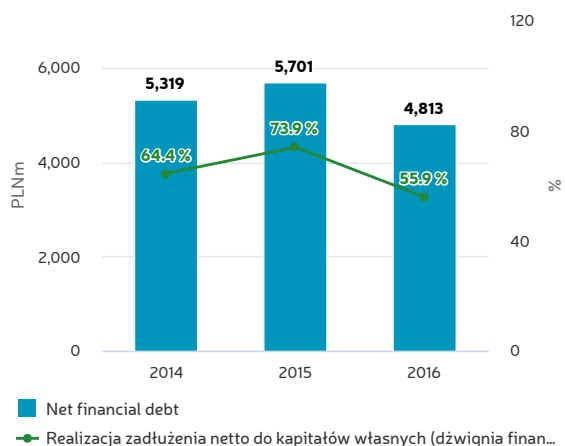
Revenue

In 2016, the LOTOS Group posted **PLN 20,931.1m** in revenue (down 7.8% on 2015), driven mainly by lower prices of crude oil and petroleum products on global markets. Average net revenue **per tonne/(toe) of products sold in 2016 was PLN 1,761** (down PLN 261, or 12.9%, on 2015). The total volume of petroleum products, merchandise and materials sold in 2016 by the LOTOS Group increased by approximately 6% on 2015.

Debt reduction

In 2016, we managed to reduce our debt to a level that will give us more comfort with implementing our strategic objectives, i.e. to **PLN 4.8bn**.

Capital structure and debt ratios (PLNm or %)



Debt fell as a result of:

- Decrease of 4.3pp in the share of liabilities in the financing of assets, as liabilities went down by 6.5% and assets grew by 0.8%,
- Decrease of 18.0pp in net debt to equity ratio (financial leverage), as net financial debt fell by 15.6% while equity grew by 11.7%,
- Decrease of 24.1pp in debt to equity ratio, as liabilities fell by 6.5% and equity went up by 11.7%.

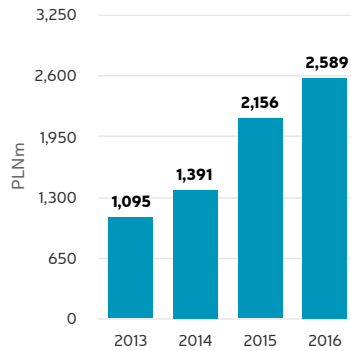
More information

Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016

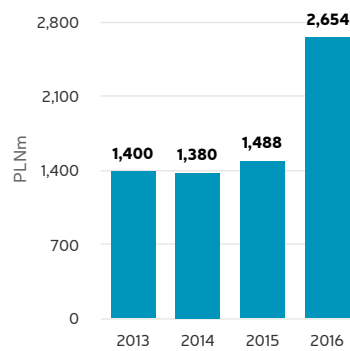
Chapter 5.3. Financing

Grupa LOTOS shares on the Warsaw Stock Exchange

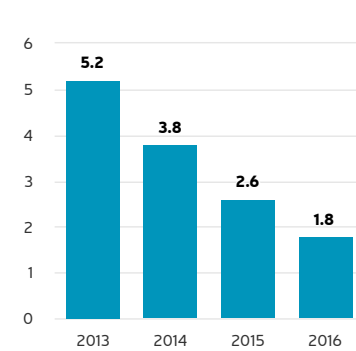
Adjusted LIFO-based EBITDA



Operating cash flow



Net debt to adjusted LIFO-based EBITDA



More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 5. Financial standing of Grupa LOTOS S.A. and its Group

Grupa LOTOS shares have been listed on the Warsaw Stock Exchange since June 2005, and are included in the WIG20 index of WSE's 20 blue chips, the WIG-Paliwa index of the fuel market, and the RESPECT Index of socially-responsible companies.

Grupa LOTOS stock performance since IPO

Grupa LOTOS share price (PLN) and trading volume (number of shares)



Factors affecting the price, including key events at Grupa LOTOS:

In 2016, the situation on capital markets, including in Poland, was largely affected by global economic developments. The most important events were:

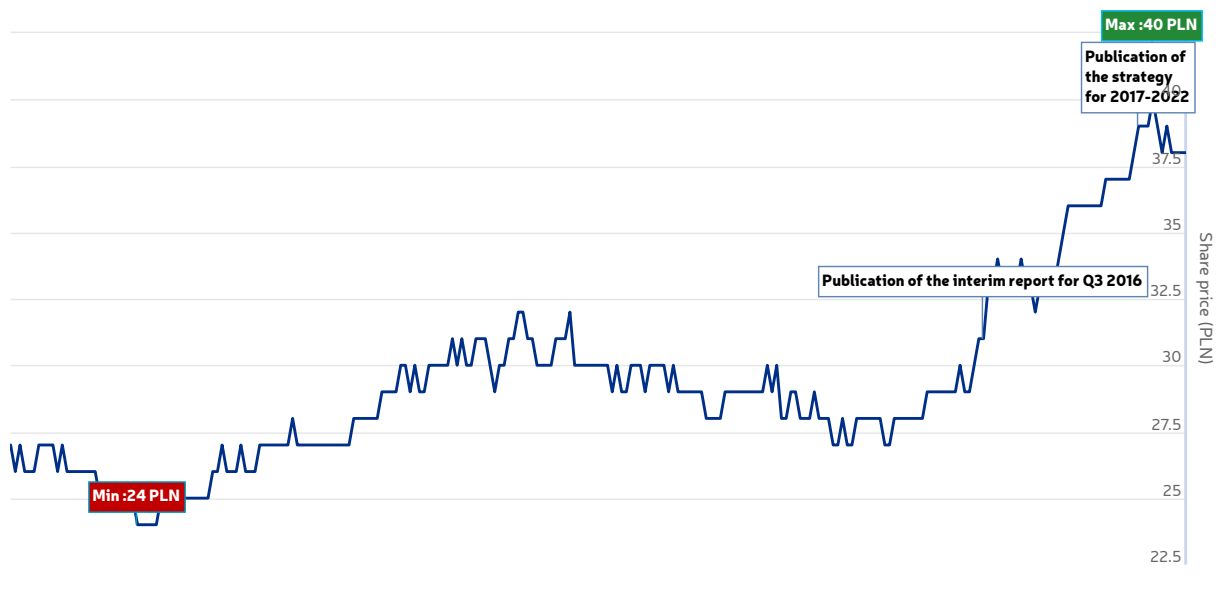
- Brexit and uncertainty about the scale of its consequences,

- Concerns about the future of open-ended pension funds,
- Reduction of the grey market for fuels through new regulations,
- No final decision on the conversion of CHF-denominated loans.

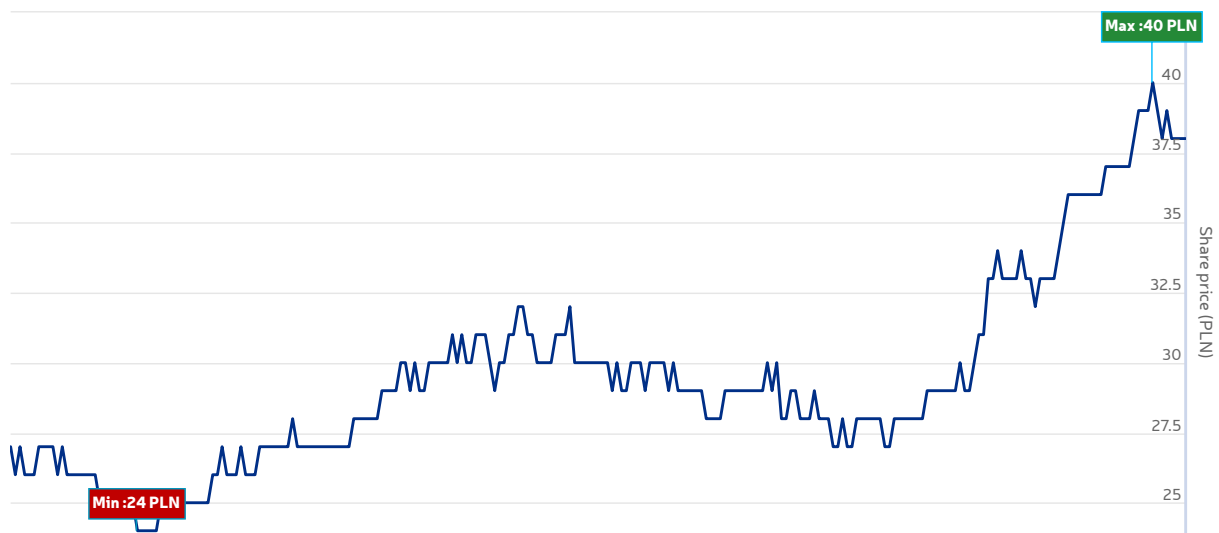
The combination of those factors drove the situation on the Warsaw Stock Exchange. For most of the year, the WSE's main index (WIG) maintained a slight (single digit) growth, to accelerate only at its end. Over the full twelve months of 2016 WIG rose **14%**.

In 2016, Grupa LOTOS traded in the range **from PLN 24.10 to PLN 40.40** (2015: from PLN 22.90 to PLN 33.50), and the year's closing price was **PLN 38.25**, compared with PLN 27 in 2015. Over the whole of 2016, the price went up **46%**.

The price of Grupa LOTOS shares increased in response to information on the **financial performance for Q3 2016**, announced towards the end of October, when the Company's **EBIT** proved better than expected. This improvement was supported by the effects of new regulations which **helped curb the grey market for fuels**, to the advantage of Grupa LOTOS. The publication of the LOTOS Group's **new business strategy for 2017–2022** on December 15th 2016 was well received by investors, pushing up the share price during the last two weeks of 2016.



Grupa LOTOS share price in 2016



Structure of broker recommendations on Grupa LOTOS shares in 2016

The target price of Grupa LOTOS shares in brokers' research reports fluctuated from PLN 24.00 to PLN 41.20, compared with PLN 22.90 to PLN 33.50 in 2015. The average target price in 2016 was PLN 31.26 (2015: PLN 30.47).

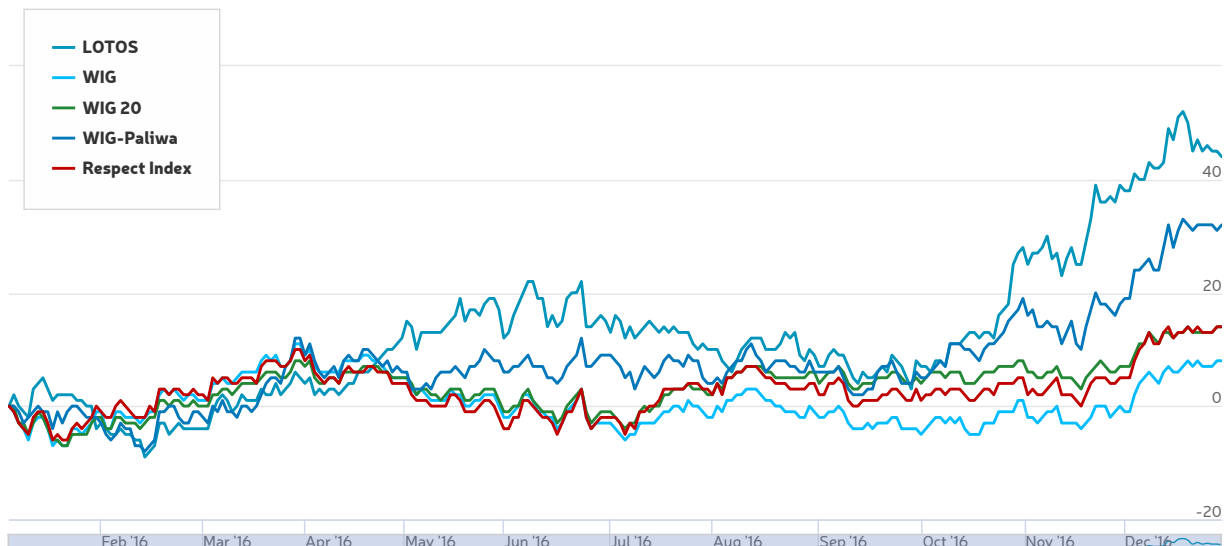
Brokers issued 12 recommendations on the Company shares in 2016:

- 4 BUY recommendations
- 3 ACCUMULATE recommendations
- 2 HOLD recommendations
- 2 NEUTRAL recommendations
- 1 SELL recommendation.

Broker recommendations and moving average of target prices against the market price of Company shares



Grupa LOTOS share price performance vs WIG, WIG20, WIG Paliwa and RE-SPECT Index [%]



In 2016, Grupa LOTOS outperformed the market as a whole.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 8.1. Grupa LOTOS shares on the Warsaw Stock Exchange

Dividends paid by Grupa LOTOS

One of the objectives of the Company's 2017–2022 strategy is to maintain dividend payment capacity.

In 2006–2016, the Company paid a dividend twice. The first distribution was for 2006 and totalled PLN 40,932 thousand, with dividend per share at PLN 0.4 and dividend yield of 0.7%. On June 14th 2017, the Annual General Meeting of Grupa LOTOS resolved to pay a dividend for 2016, in the amount of PLN 184,873.4 thousand. Dividend per share was PLN 1.0 and dividend yield was 2.61%.

Dividend and dividend yield in 2005–2016

Financial year	Dividend (PLN)	Dividend per share (PLN)	Share price at the year end (PLN)	Dividend yield (%)
2005	0	0	44,2	-
2006	40,932,000	0,36	49,3	0,73
2007	0	0	44,5	-
2008	0	0	12	-
2009	0	0	31,8	-
2010	0	0	36,4	-
2011	0	0	23,3	-
2012	0	0	41,2	-
2013	0	0	35,3	-
2014	0	0	25,5	-
2015	0	0	27	-
2016	184,873,362	1	38.25	2,61

Historical dividend per share (PLN)

Financial year	Dividend per share (PLN)	% of net profit	Dividend record date ¹	Dividend payment date ²
2005	0	0.00	-	-
2006	0,36	10,06	Jun 11 2007	not later than Jul 31 2007
2007	0	0	-	-
2008	0	0	-	-
2009	0	0	-	-
2010	0	0	-	-
2011	0	0	-	-
2012	0	0	-	-
2013	0	0	-	-
2014	0	0	-	-
2015	0	0	-	-
2016	1	15.92	Sep 12 2017	Sep 29 2017

More information

Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016

Chapter 8.3, 8.4, 8.5

Grupa LOTOS included in the index of socially-responsible companies for the 10th time

In 2016 again, for the 10th time, Grupa LOTOS shares became a constituent of the WSE's RESPECT Index – an index of responsible companies operating in accordance with exacting CSR standards in the areas of corporate governance, information policy and relations with investors, the environment, society and employees.

Grupa LOTOS has been present in the RESPECT Index since its inception in 2009. To date, the WSE has announced ten editions of the index. The most recent one, announced at the end of 2016, includes 25 companies. Since its first publication in 2009, the RESPECT index has increased by 50%.

Comments

In 2016, cost of sales of the LOTOS Group stood at PLN 17,215.7m (down 15.0% on 2015). In the same period, the estimated unit cost of sales was PLN 1,448/t (down PLN 355/t or 19.7% on 2015). The unit sales margin in 2016 came at PLN 313/t (up 42.9% on 2015). The LOTOS Group's consolidated gross profit for 2016 was PLN 3,715.4m (up PLN 1,255.0m, or 51.0% on 2015).

Administrative expenses decreased by PLN 33.2m (down 7.5% on 2015) mainly on lower employee benefits expense.

In 2016, the LOTOS Group reported net other expenses of PLN -143.7m, including chiefly:

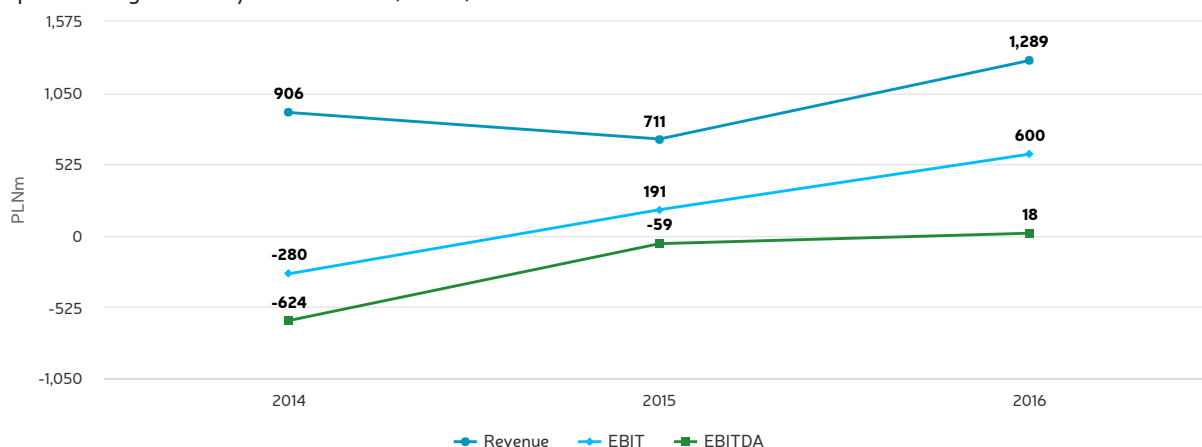
- PLN -61m in net impairment losses on exploration assets and non-current assets and revaluation of provisions related to production activities in the Baltic Sea (including PLN -65m in impairment losses on expenditure related to the Gaz Południe licence area),
- PLN -22m in net impairment losses on assets and remeasurement of provisions related to the Norwegian fields
- PLN -5m write-off of expenditure related to Lithuanian assets,
- PLN -12m in impairment losses on service stations.

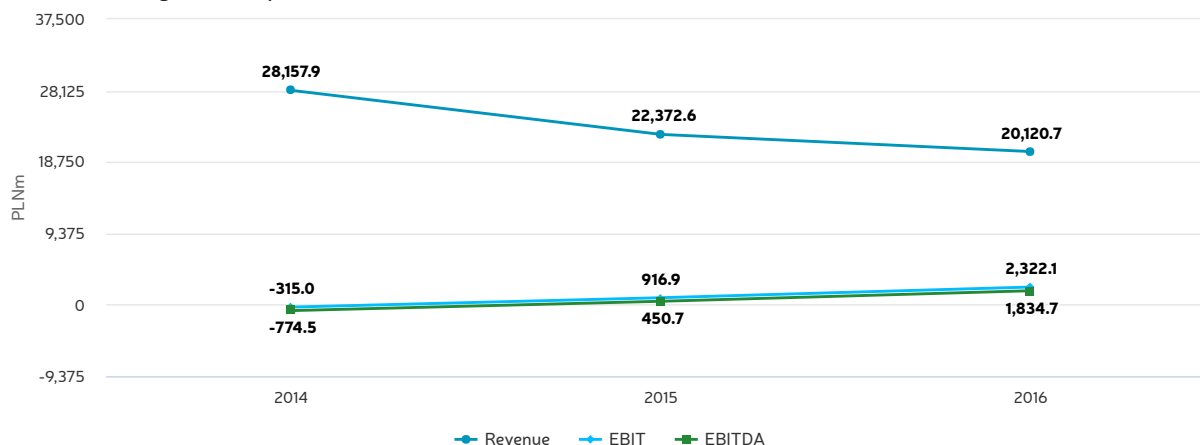
The LOTOS Group's operating profit for 2016, **of PLN 1,854.7m (2015: PLN 423.4m)**, included:

- Operating profit of PLN 1,834.7m in the Downstream segment,
- Operating profit of PLN 17.8m in the Upstream segment.

The 2016 increase in operating profit was driven mainly by the uptrend in crude oil and petroleum product prices vs the previous year's downtrend, the higher USD/PLN exchange rate in 2016, and the higher differential for the Urals crude.

Upstream segment's key financial data (PLNm)



Downstream segment's key financial data (PLNm)


The lower revenue posted by the Downstream segment in 2016 relative to 2015 was mainly due to a 10.9% fall in average selling prices caused by lower prices of oil products on global markets, offset by the higher USD/PLN exchange rate. In 2016, the LOTOS Group posted an operating profit of PLN 1,834.7m in the Downstream segment; the main contributors included rising prices, higher exchange rates, higher differential for the Urals crude, and lower cost of gas purchased by the refinery for its own needs.

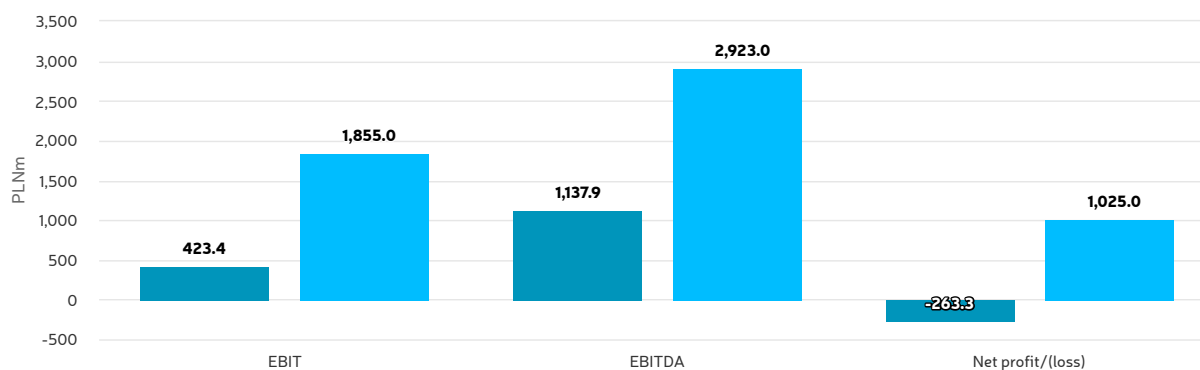
Cash flows (PLNm)

	2016	2015	change
Cash flows from operating activities	2 653.9	1 488.1	1 165.80
Cash flows from investing activities	-1 003.2	-1 162.0	158.8
Cash flows from financing activities	-1 201.4	114.7	-1 316.10
Change in net cash	452.7	444.8	7.9
Cash and cash equivalents at beginning of period	278.1	-166.7	444.8
Cash and cash equivalents at end of period	730.8	278.1	452.7

As at December 31st 2016, the LOTOS Group's cash balance (including current account overdrafts) was PLN 730.8m. In 2016, net cash flows added PLN 452.7m to cash and cash equivalents. The LOTOS Group generated positive cash flows from operating activities of PLN 2,653.9m (up PLN 1,165.9m on 2015), mainly on net profit before depreciation and amortisation, income tax, and higher trade payables, which were offset by lower trade receivables.

Cash flows from investing activities of PLN -1,003.2m primarily included expenditure on acquisition of property, plant and equipment and other intangible assets. A portion of expenditure on the EFRA Project in 2016 was financed with proceeds from the issue of Grupa LOTOS Series D shares deposited in a separate bank account.

Net cash flows from financing activities of PLN -1,201.4m were due mainly to repayments of borrowings and interest payments, offset by proceeds from borrowings and a gain on settlement of financial instruments.

Profitability ratio (PLNm or %)


Our business > Ethics and corporate governance

Ethics and corporate governance

[G4-34] [G4-38] [G4-39] [G4-56] [G4-57] [G4-58] [G4-LA12] [G4-S03] [G4-S04] [G4-S05]

- Corporate governance is a way to build the LOTOS Group's relations with investors and employees based on transparency and trust.
- 2016 saw the appointment of a new Ethics Officer, who has a ten year track record of working with the trade unions active at the LOTOS Group.
- The LOTOS Group was audited and received the Integrated Management System Certificate for the next three years.
- Grupa LOTOS follows the *Best Practice for WSE Listed Companies 2016*. In line with its information policy, the Company reports all instances of non-compliance on an ongoing basis.

[G4-S03] [G4-S05]

- No instance of corruption was reported at the LOTOS Group in 2016. No corruption risk assessment was performed.

Corporate governance builds our credibility

Corporate governance

The LOTOS Group is committed to high standards of corporate governance and takes care to ensure they correlate strongly with its corporate social responsibility objectives to build a partnership with stakeholders, from investors to employees. Corporate governance strengthens the credibility of Grupa LOTOS as a company listed on the Warsaw Stock Exchange, which thus enhances the competitive position of the entire LOTOS Group.

The key objectives of corporate governance at Grupa LOTOS are as follows:

- Transparency of operations – presentation of a precise and true image of the Company, its strategy and financial position,
- Building trust in relations with the stakeholders,
- Consistent shareholder value creation,
- Accessibility to and equal treatment of all investors.

From its first listing in June 2005, Grupa LOTOS pursued its information policy in line with most of the recommendations set out in the document *Best Practices for Public Companies*. From 2008, it followed the *Code of Best Practice for WSE Listed Companies* (as amended on October 19th 2011 and November 21st 2012). Since January 1st 2016, the Company has followed the revised *Best Practice for WSE Listed Companies 2016*.


More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 9.3. Corporate governance principles applied by Grupa LOTOS S.A. in 2016

Disclosure policy of Grupa LOTOS

The Company uses a variety of tools for communicating with investors, including mailing, newsletters, webcasts, participation in conferences for institutional and individual shareholders and brokers, conference calls, one-on-one meetings, open-house days for analysts and investors.

In addition, Grupa LOTOS operates an [an investor relations website](#) . This service, available in Polish and in English, is updated on an ongoing basis and designed to provide both domestic and foreign investors and analysts with equal access to information.

The reports are published on the EBI (Electronic Information Base) platform, as well as (in English and Polish) on the Company's investor relations website.

The General Meeting of the LOTOS Group

The powers of the General Meeting cover a wide range of matters detailed in the *Articles of Association* of Grupa LOTOS. All matters to be submitted to the General Meeting are first presented for consideration to the Supervisory Board. The rules of attendance and voting at General Meetings are set forth in the *Rules of Procedure for General Meetings of Grupa LOTOS*, which also specify the procedures for convening and cancelling General Meetings, their proceedings, and holding elections to the Supervisory Board.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 9.2.1. General Meeting of Grupa LOTOS S.A.

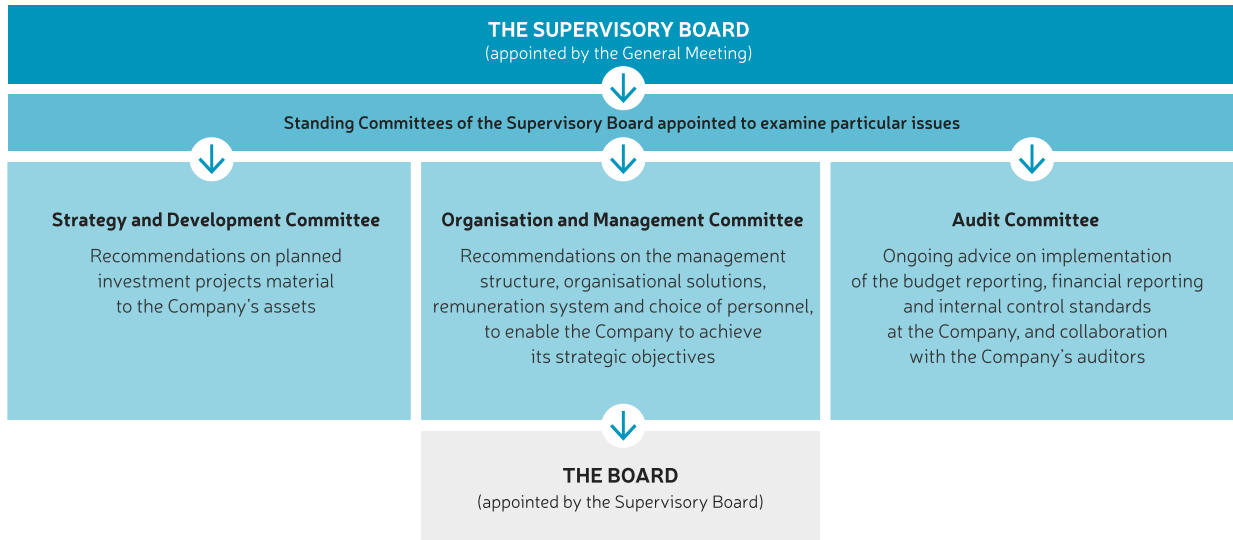
The *Articles of Association* and *Rules of Procedure for General Meetings* are available on our [website](#) .

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 9.2.4. Rules for amending the Articles of Association of Grupa LOTOS S.A.

[More on the activities of General Meetings](#), including adopted resolutions and shareholders' questions.



[G4-34] [G4-38] [G4-39]

Corporate governance structure of Grupa LOTOS

The Supervisory Board







The Supervisory Board exercises ongoing supervision over Grupa LOTOS' business in all areas of its activity. It performs its duties collectively, but may also set up ad hoc or standing committees to exercise supervision of specific areas. Standing committees of the Supervisory Board include the Audit Committee, Strategy and Development Committee, and Organisation and Management Committee. The Supervisory Board may also delegate its members to individually perform certain tasks or functions.

The procedures to be followed by the Supervisory Board of Grupa LOTOS are defined in the Company's [Articles of Association and Rules of Procedure for the Supervisory Board](#).

[G4-38]

Composition of the Supervisory Board of Grupa LOTOS (9th term)

- Beata Kozłowska-Chyła – Chairwoman, [Full profile](#)

- Katarzyna Lewandowska – Deputy Chairwoman, [Full profile](#) 
- Agnieszka Szklarczyk-Mierzwa – Member, [Full profile](#) 
- Dariusz Figura – Member, [Full profile](#) 
- Mariusz Golecki – Member, [Full profile](#) 
- Piotr Ciach – Member, [Full profile](#) 
- Adam Lewandowski – Member, [Full profile](#) 

For details of the Supervisory Board composition as at December 31st 2016 and changes made to the Supervisory Board of the 9th term during the reporting period, see the [Directors' Report](#) on the operations of Grupa LOTOS in 2016.

[More information on the Supervisory Board of Grupa LOTOS](#) 

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 9.2.2. Supervisory Board of Grupa LOTOS S.A.




The Board

The Board of Grupa LOTOS represents the Company before third parties and manages its corporate affairs. Members of the Board manage the respective areas of the Company's operations. Each member of the Board is authorised to represent the Company in court and out of court in relation to its business, with the exception of matters reserved for the General Meeting or the Supervisory Board under the *Commercial Companies Code* or the Company's *Articles of Association*, matters falling outside of the ordinary course of business where they require the Board's prior resolution, and matters within the powers of another member of the Board.

The Board operates on the basis of the Grupa LOTOS' [Articles of Association and its Rules of Procedure](#) .

[G4-34]

Composition of the Board of Grupa LOTOS as at August 31st 2016

- Marcin Jastrzębski – President of the Board, [Full profile](#) 
- Mariusz Machajewski – Vice President, Chief Financial Officer,
- Mateusz Aleksander Bonca – Vice President, Chief Strategy and Development Officer, [Full profile](#) 
- Jarosław Kawula – Vice President, Chief Refining Officer. [Full profile](#) 

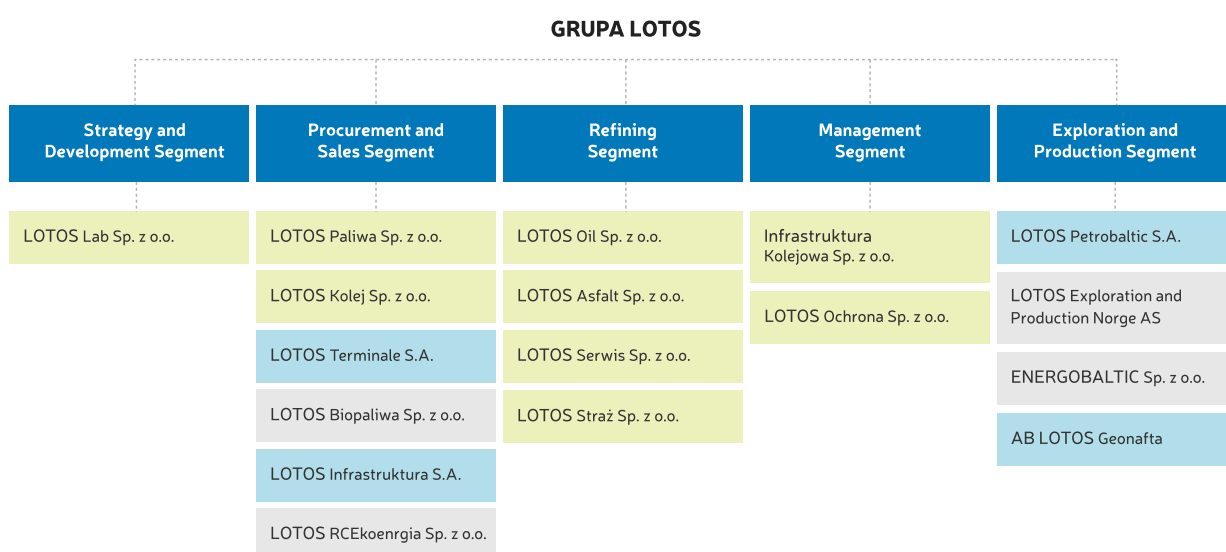
For details of the Board composition as at December 31st 2016 and its changes during the reporting period, see the [Directors' Report](#) on the operations of Grupa LOTOS in 2016 (Chapter 9.2.3. Management Board of Grupa LOTOS S.A. and powers of individual members).

Management structure

As at December 31st 2016, the LOTOS Group comprised Grupa LOTOS S.A. as the Parent, and 35 production, trading, and service companies, including:

- 13 direct subsidiaries of Grupa LOTOS,
- 21 indirect subsidiaries of Grupa LOTOS,
- and one foundation.

Direct subsidiaries and selected indirect subsidiaries relevant to this report are attributed to the following management segments (as at June 2nd 2017):



More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 1.2. Overview of the Group's organisation and management

Integrated Management System

In 2016, a recertification audit was carried out at Grupa LOTOS to review its Integrated Management System (quality, environment and OHS). The audit demonstrated adequate specialist knowledge of the people working in the audited areas and their commitment to continuous improvement of the Integrated Management System (IMS) processes. As a result of the audit the Company maintained its IMS certification.

Benefits from the IMS implementation:

- Meeting the customers' and trading partners' requirements.

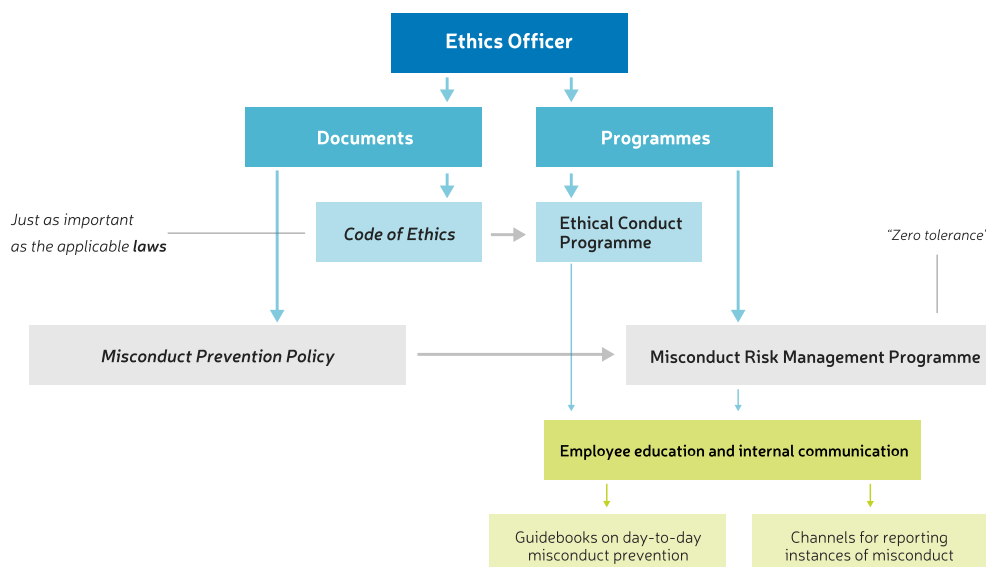
- Meeting the legal requirements.
- Enhancing the organisation's effectiveness and efficiency in attaining its strategic and operating objectives.
- Streamlining of the organisation's processes.
- Mitigating the risks inherent in the business and taking advantage of opportunities as they arise.
- Management efficiency improvement, streamlining of the organisation.
- Improved work organisation, clear definition of the employees' tasks, competencies and responsibilities.
- Standardisation and centralisation of activities in defined areas across the LOTOS Group.
- Identification of areas for improvement.
- Encouraging pro-environmental activities at the organisation.
- Work safety improvement.
- Openness to other standardised management systems.

Management systems at the LOTOS Group as at December 31st 2016

Company name	Management systems in place
Grupa LOTOS	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards. Implemented requirements of AQAP 2110 (Allied Quality Assurance Publication) and requirements of the Internal Control System for trading in strategic materials (conforming with the PN-N-19001 standard).
LOTOS Asfalt	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards. Implemented and certified Site Production Control System.
LOTOS Kolej	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001, and PN-N-18001 standards; Railway Transport Security Management System (SMS) compliant with Directive 2004/49/EC and national regulations; Rail Vehicle Maintenance Management System (MMS) compliant with Directive 2004/49/EC and Regulation (EU) 445/2011; Quality in Welding Management System compliant with the DIN EN ISO 3834-2 (EN 729-2) and EN 15085-2 standards; and system of Maintaining Freight Cars in accordance with the VPI requirements. In 2015, LOTOS Kolej's Railway Transport Security Management System (SMS) received Safety Certificate - PART B, compliant with Directive 2004/49/EC and national regulations, enabling the company to carry out rail freight operations using German rail infrastructure. In 2016, LOTOS Kolej implemented and obtained certification of the GMP+ B4 system, so it can contract freight for transport and transport fodders and grains by rail in the GMP+ system.
LOTOS Lab	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards. Polish Centre for Accreditation certificate of compliance with the PN-EN ISO/IEC 17025:2005 standard.
LOTOS Ochrona	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards.
LOTOS Oil	Implemented and certified Quality Management System compliant with the ISO 9001 standard and with the Allied Quality Assurance Publication (AQAP) 2110. Implemented requirements of the ISO 14001 and PN-N-18001 standards.

Company name	Management systems in place
LOTOS Petrobaltic	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards. Implemented ISM Code (for compliance with the International Management Code for the Safe Operation of Ships and for Pollution Prevention) and ISPS Code (International Ship and Port Facility Security System).
LOTOS Serwis	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards. Implemented and certified requirements of Quality in Welding Management System, compliant with the PN-EN ISO 3834-2:2007 standard, covering the construction of metal structures and auxiliary elements, EXC1, EXC2, EXC3 class steel structures in accordance with the PN-EN ISO 1090-1:2009+A1:2012 IDT EN 1090-1:2009+A:2011 standard, covering the requirements for the competence of testing and calibration laboratories in accordance with the PN-EN ISO/IEC 17025:2005 standard, and covering the repair of explosion-proof electrical equipment in accordance with the PN-EN 60079-19:2011 standard.
LOTOS Straż	Implemented and certified Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards.
LOTOS Terminale	Implemented Integrated Management System compliant with the ISO 9001, ISO 14001 and PN-N-18001 standards.
LOTOS Paliwa	Implemented and certified Quality Management System compliant with the ISO 9001 standard. Implemented requirements of the ISO 14001 and PN-N-18001 standards.

Business ethics system



In 2016, the LOTOS Group continued its efforts to build a corporate culture of ethics. The intention of the LOTOS Group as an organisation aware of its impact on the environment is to conduct its business with due respect for generally accepted social standards. This approach is pursued by:

- Implementing the **Ethical Conduct Programme** addressed to the employees and external stakeholders; the Programme is a real foundation for the corporate culture and management of the organisation.

- Enhancing business process security through the **Misconduct Risk Management Programme**, which supports effective misconduct risk management throughout the organisation.

ETHICAL CONDUCT PROGRAMME	MISCONDUCT RISK MANAGEMENT PROGRAMME
<p>OBJECTIVE: Business ethics as the principal strategic standard of the organisation</p>	<p>OBJECTIVE: Deliberate and active building of the organisation's immunity to misconduct</p>
<p>Programme components:</p> <ul style="list-style-type: none"> ■ Code of Ethics ■ Ethics Officer ■ Reporting channels ■ Education ■ Communication 	<p>Programme components:</p> <ul style="list-style-type: none"> ■ Misconduct Prevention Policy ■ Assessment of the organisation's immunity to misconduct ■ Identyfikacja ryzyka nadużycia w procesach ■ Education ■ Communication

[G4-56]

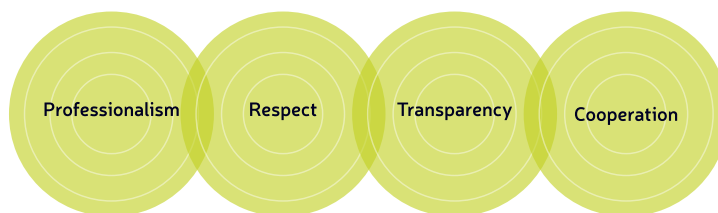
The Programmes are founded on two key documents: [the Code of Ethics](#) and [the Misconduct Prevention Policy](#).

[G4-56]

Ethical Conduct Programme

The cornerstone of the Ethical Conduct Programme is the *Code of Ethics* and the values we chose to guide us in managing the organisation.

Ethical values of the LOTOS Group:



The Ethical Conduct Programme is a bridge between the *Code of Ethics* and its implementation in everyday life and management of the organisation. With the Programme, we want to make business ethics a true ethical touchstone in managing the LOTOS Group.



[G4-57]

New Ethics Officer

The duties of the dissolved Ethics Board that had operated for three years were taken over in mid-2016 by the Ethics Officer Paweł Pettke, who had been the LOTOS Group's Unions Officer for the previous ten years. The experiences of the former Ethics Officer attest to the great weight our employees attach to ethics. Meetings that address ethical issues attract large audiences. Several dozen ethics meetings were held in 2015 and 2016, attracting some **3,000 staff**. Over that time, the Ethics Officer received **more than 200 enquiries and advice requests**. In 2016, the Ethics Officer continued to interact with employees using proven direct communication channels, and received over 60 new enquiries. In line with the internal practice, the work of the Ethics Officer is performed without compensation.

[G4-57] [G4-58]

Reporting misconduct

The Ethics Officer is available to all employees of the LOTOS Group and its trading partners. The following methods can be used to communicate with the Ethics Officer:

- A meeting in person at a time convenient to the employee, arranged in advance by phone,
- By phone or voicemail to the Ethics Officer (tel. no. +48 58 308 80 70)
- By email to: liniaetyki@grupalotos.pl,
- Online report form available at www.lotos.pl,
- By regular mail.

Zero tolerance for misconduct

The *Misconduct Prevention Policy* defines our strict approach as “**zero tolerance for criminal behaviour**”. By signing the *Code of Ethics*, our employees commit to behaving ethically and lawfully.

We support them through communication and education, showing them how to identify potential risks and prevent misconduct in everyday work. The *Guide* published by the Internal Audit Office serves this purpose. We also ran the 'Monday with Ethics' competition in 2016.

In addition, we have developed solutions that effectively prevent misconduct, as demonstrated by the results of periodic organisational maturity assessments.

[G4-58]

Prevention of misconduct

- We have the Internal Audit Office in place as a body responsible for controlling the risk of misconduct.
- Employees and partners are trained in fraud detection and prevention.
- All suspected misconduct reports are kept confidential.
- We have a non-retaliation policy in place.

78 is the total number of unethical or illegal conduct reports submitted in 2016.

Monday with Ethics

'Monday with Ethics' is an educational programme for all staff, promoting knowledge of the *Code of Ethics*. The competition asked employees to provide their interpretations of potential workplace misconduct scenarios in the light of the *Code of Ethics*.

The ethical dilemmas concerned the use of company property, dealing with conflicts of interest, and responding to unusual behaviour of a colleague or a discovered machine failure. The winners came from different LOTOS Group companies and organisational units.

[G4-57] [G4-58]

The LOTOS Group's areas for development in ethics

Setting up mechanisms for:

- Seeking advice outside the organisation/anonymously,
- Reporting concerns and instances of misconduct independently from the organisation (for example through a third party company).

Implementing surveys to assess the level of satisfaction of those that:

- Requested ethical or legal advice,
- Used unethical or illegal conduct reporting mechanisms.

Our business > The LOTOS Group's external impacts along the entire supply chain

The LOTOS Group's external impacts along the entire supply chain

[G4-12] [G4-EC9]

- We deliberately manage our impacts on the external environment along the entire supply chain.
- We work with partners who respect human rights and apply socially acceptable practices in the workplace.

Supply chain ethics

Mindful of our external impacts and strong reliance on contractors and suppliers, we want to work with partners who also attach priority to the universally accepted system of values. This approach aims to ensure that our contractors and suppliers down the supply chain treat their own employees with respect and dignity.

The LOTOS Group manages its supply chain by:

- Coordinating purchases of raw materials and components,
- Planning production and raw material supply logistics,
- Production process,
- Distribution of products.

We uphold the philosophy of integrated supply chain management, whereby we seek to maximise the integrated economic effects of our operations while doing our best to meet the expectations of all stakeholders. The supply chain is an international environment where the LOTOS Group connects with its suppliers and customers.

- **Given the scale of our business, our network of relationships with suppliers and customers is a complex structure spanning various aspects, both at the operational level and the strategic level. When engaging in long-term business relationships, we pay attention to the market position and CSR record of our prospective partners. Many of our partners are international oil companies which have pioneered the industry's commitment to corporate social responsibility and business ethics.**

- As a vertically-integrated oil company, we take active steps to control the flow of raw materials, products, information, and financial resources within the organisation, from the moment a raw material is extracted, through production and distribution, to consumption of the final product by its end user.
- Aware of the importance of working with a local supplier base, we strive to partner with companies which offer the expected competencies and meet our standards of cooperation. We seek to minimise the negative impact of fossil fuels in transport by sourcing 72% of the components (bioethanol and FAME) we use to produce our fuels from local suppliers.
- We observe the highest quality and safety standards. Entities, including local businesses, which render services at our production facilities are provided with technical standards applicable to the work they are to perform, containing detailed information on the relevant technologies. Contractor employees undergo mandatory training, including in workplace safety. Our trading partners are invited to meetings at which they learn about the standards and values we adhere to and the rules of conduct applicable at the LOTOS Group.

Key suppliers and customers

The following are the LOTOS Group's key suppliers, accounting for over 10% of total sales revenue in 2016:

- VITOL S.A. of Switzerland, with a 21.78% share in total purchases,
- Rosneft of Russia, with a 19.60% share,
- Tatneft-Europe AG of Switzerland, with a 14.53% share.

In 2016, none of the LOTOS Group's customers accounted for more than 10% of total revenue. In 2015, a customer accounting for more than 10% of total revenue was Statoil companies (with a total share of 10.04%).

The LOTOS Group had no formal links with its customers and suppliers other than commercial contracts.

Building an ethical value chain

- **Supplier audits.** We define standards of conduct for suppliers, and we evaluate suppliers' compliance with the standards and track improvements.
- **Contract clauses.** We embed clauses in our contracts that require suppliers to comply with social responsibility standards and that govern the areas of labour rights, environmental protection and conflicts of interests.
- **Choice of socially responsible suppliers.**

Best practice example. Ambra. Ambra is a cleaning company that provides janitorial services in our office buildings in Gdańsk. Since 2014, it has been making efforts to integrate social commitment, local community engagement and environmental protection into its activities.

As part of its social commitment and local community engagement, the company hires people in the care of the local Municipal Family Welfare Centre, providing them with training and job stability under employment contracts. Mindful of the environment and client expectations, Ambra uses such solutions as dispensing cabinets to cut consumption of cleaning chemicals. This practice was acknowledged in the RBF's Responsible Business Report.

World-class supply chain standards

The LOTOS Group develops its strategy of corporate social responsibility in the supply chain based on the methodology of the **Corporate Human Rights Benchmark** project. The initiative serves to draw the attention of global business to the violation of fundamental human rights by corporations, their contractors and suppliers. Its purpose is also to create a ranking of global listed companies and to recognise those that excel in human rights abuse prevention.

The Corporate Human Rights Benchmark methodology builds on internationally recognised standards, including the standards of business conduct in the area of human rights and child rights developed by the **UN**, and the **SA 8000** standard, which helps companies to develop, maintain and apply acceptable workplace practices. In addition, the methodology takes into account the **Sustainable Development Goals** in the 17 areas identified as key to further development of the world through wide-ranging public consultations.

Risk management

[G4-2] [G4-14]

- Risk is inherent in our activities. It requires us to take particular responsibility for the environment and for the health and safety of our employees.
- In 2016, we carried out an internal review to evaluate the operation of our Enterprise Risk Management system.
- The primary sources of uncertainty affecting the achievement of our business objectives are strategic, financial, reputational and compliance risks.
- We operate a mature risk management system and have built a strong risk awareness culture.
- During 2016 we continued to deploy the RBI methodology, which allows us to comprehensively manage the risks of operating plant and equipment in the Gdańsk Refinery and extend maintenance intervals.

Our business > Risk management > Our approach to risk management

Our approach to risk management

Every business decision that we make follows an analysis of the risks involved. The nature of the fuel industry demands that we take a strategic approach to mitigating risks affecting our organisation and its social environment. With applicable internal regulations and processes in place, we investigate and effectively mitigate potential threats on a daily basis.

At the LOTOS Group we take responsibility for our actions, therefore we have **adopted pro-active management of risks and opportunities as a strategic goal for 2017–2022, which we intend to pursue through the following initiatives:**

- First: we aim to build a strong culture of open dialogue and early response to risk symptoms,
- Second: we want our risk management framework to support processes that allow for stakeholder value creation.

Given our strong impact on the external environment, we take particular care to **investigate and identify risks** in all areas of our activity, including our flagship EFRA and B8 field development projects. Risk information is used in operational planning, budgeting and long-term forecasting. The LOTOS Group effectively mitigates risks inherent in its current operations by developing and refining policies and regulations governing its business processes, investment projects, and new product commercialisations.

Risk Management Model in LOTOS Capital Group assures risk governance through 3 lines of defence.

The first line of defence (1st) is based on operational functions that manage its own risks through process specific solutions, which are scaled adequately to risk dynamics and impact. Another, 2nd line consists of corporate functions that oversee and or specialize in risk management e.g.: Risk Management, Compliance and Finance. This level defines general rules, principles and criteria for risk management within LOTOS Capital Group as well as monitor an forecasting overall company risk exposure and risk profile. Eventually, adequacy and effectiveness of risk management system is verified periodically by Audit function (3rd Line of defence).

ERM system

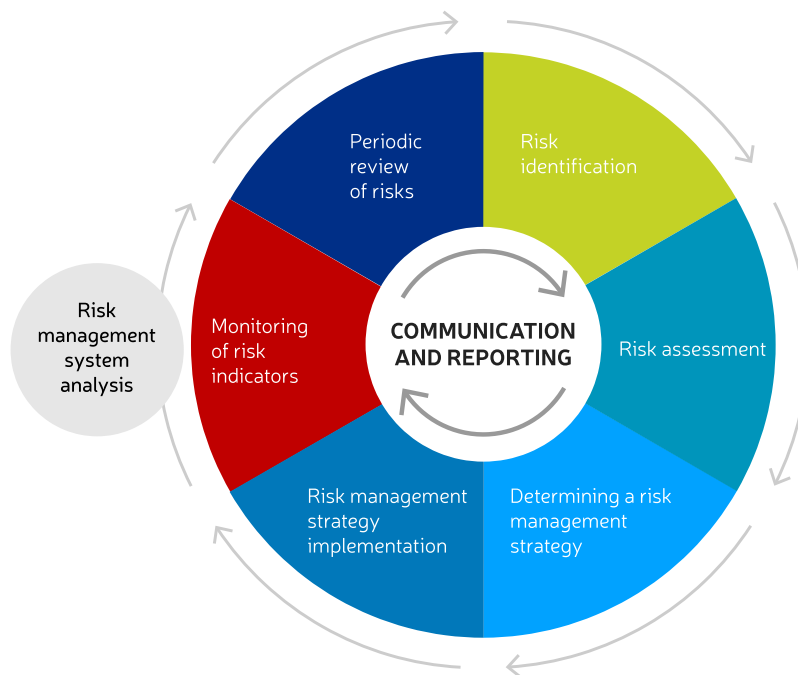
The comprehensive **Enterprise Risk Management (ERM) system**, in place at the LOTOS Group since 2011, was implemented to support safe operation of the organisation and achievement of its objectives.

Key responsibilities and general risk management guidelines are defined in the *Enterprise Risk Management Policy* developed by the LOTOS Group. Also, an Enterprise Risk Management Committee has been established at the Parent, which advises the Board on risk management.

Risk management process

The key ERM tool is a risk management procedure, which describes the process and sets out the rules for risk identification, assessment, monitoring and reporting as well as methods designed to evaluate the effectiveness of mitigating actions taken.

In practice, risk management at the LOTOS Group is a multi-stage process comprising:



Roles in the risk management process

Supervisory Board – monitors the effectiveness of the risk management system.

The Board – takes key decisions about the ERM system and identifies risk owners.

Segment heads – are responsible for overall monitoring and supervision of risk management in their segments.

Enterprise Risk Management Committee – provides opinions, recommends ERM-related actions and monitors their progress. The Committee consists of representatives of each segment.

Risk Management Office – coordinates and supports actions taken by risk owners.

Risk owners – manage individual risks, defining the course of action with respect to each risk and monitoring its levels.

LOTOS Group employees – implement risk mitigation activities and identify new risks.

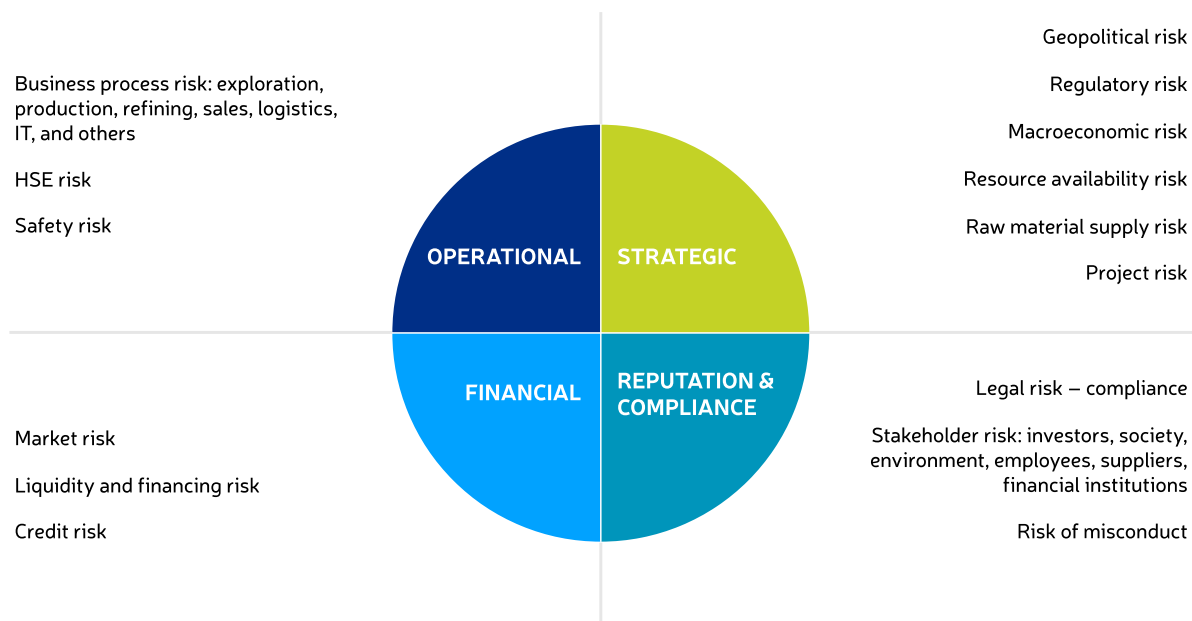
Internal Audit and Process Management Offices – review and evaluate the effectiveness of implemented controls during internal audits, and identify and assess risks associated with the LOTOS Group’s operations. The Internal Audit Office annually evaluates the effectiveness of the risk management framework as part of the assessment of organisational maturity and individual risk management methods.

All of our risk management efforts are supported by an IT tool, **the ERM Portal**. The ERM Portal is used to record risks and risk assessment results and prepare risk maps, to monitor current risk indicators and the progress of planned actions, as well as for reporting purposes. Audit results are also recorded in the ERM Portal where the audit involves a review of the risk management procedures.

In 2016, we internally reviewed the operation of our risk management framework and developed future development directions in line with best market practices. **The LOTOS Group operates a mature risk management system and has built a strong risk awareness culture.**

Key risks to our business

Key types of risk to the LOTOS Group’s business include operational, strategic, financial, reputational and compliance risks. They are the main source of uncertainty as to whether our operational and strategic goals will be achieved.



The volatility of the macroeconomic environment is a key variable determining the strategies of companies in the oil sector. For years, their business was based on long-term strategic plans. **However, what is crucial to success today is flexibility and the ability to respond swiftly to changes in the market. This is a challenge facing the LOTOS Group in the near future as, in order to expand, our business requires high capital expenditure with long investment project completion times, which consequently gives rise to uncertainty as to rates of return, i.e. creates risk.** Our analyses have revealed four groups of factors which have a material bearing on our business and pose the greatest risks. These are:

- Major changes in the mix of energy sources and environmental policy,
- Growing local and global competition,
- Accelerating advances in technology,
- Poland’s energy security.

Our business > Risk management > How we reduce the probability of risk materialising

How we reduce the probability of risk materialising

Operating in a largely volatile macroeconomic environment, the LOTOS Group adopts a precautionary approach. Where possible, risk is reduced to a level considered economically acceptable.

We give effect to this precautionary approach through:

- The ERM system, which supports the safe operation of our organisation and the achievement of business goals with due respect for our environment and its values.
- The *Code of Ethics*, which sets the standards of conduct in line with the LOTOS Group ethical values.
- Environmental protection and OHS standards, which ensure the highest standard of people's and process safety. With regard to HSE, we apply the ALARP (As Low As Reasonably Practicable) principle.
- Standardised contract forms, which lay down proper terms and conditions for cooperation with trading partners.
- Other policies and operating procedures, which define the acceptable risk levels in business processes.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 6. Grupa LOTOS S.A.'s and the LOTOS Group's business risks

[Note 28. Objectives and policies of financial risk management](#) in Consolidated Financial Statements for 2016



LOTOS Group
Integrated Annual Report 2016

03

OUR STRATEGY

Our strategy > Value Creation Model

Value Creation Model

- The values we create bring benefits not only to the LOTOS Group but also to its many stakeholders.
- All the segments comprising our value chain are profitable.

The LOTOS Group's Value Creation Model has been founded on thorough, realistic analyses and long-term forecasts of the global oil market, and therefore should ensure stable and secure growth of the LOTOS Group in 2017–2022.

A full description of our business model is available in an interactive form on our Integrated Report: <http://2016.raportroczny.lotos.pl/en/our-strategy/value-creation-model>

Long-term prospects for the LOTOS Group's expansion

Key opportunities and challenges in the long term

According to long-term projections, demand for fuel will grow in Central and Eastern Europe and continue to weaken in Western Europe – by 14% by 2030. As a whole, Europe is forecast to see stronger demand for aviation fuels and a decline in demand for gasoline. Concurrently, under the EU climate policy, refineries will be required to adopt solutions to reduce CO₂ and other greenhouse gas emissions and to step up the use of renewables.

Key long - term market opportunities and challenges



Major changes in the mix of energy sources and environmental policy

- o Shift in the structure of fuel demand
- o Shale gas revolution
- o EU's climate policy

Accelerating advances in technology

- o Electric and hybrid vehicles
- o Industry 4.0
- o Weakening demand for oil products in EU (energy efficiency)

Growing competition on dynamic market

- o New refining capacities in Middle East and Asia
- o Change in the oil products import and export directions – US as an oil & gas exporter

Poland's energy security

- o Own energy sources
- o Diversified supply directions
- o Flexibility in procurement

Major changes in the mix of energy sources and environmental policy:

Shift in the structure of fuel demand

By 2021, global demand for fuel is expected to grow by 5 mboe/d (to 100.6 boe/d), despite a 0.4 mboe/d decline in Europe. Across Europe, gasoline consumption will decrease by 13%, while demand for jet fuel and diesel oil will rise by 10% and 3%, respectively.

Shale gas revolution

In the U.S., upstream companies have been deploying increasingly more advanced and cost-effective shale oil production technologies, thus also reducing servicing costs. This has resulted in greater output of natural gas and crude oil and has allowed the U.S. to reduce its dependence on imported energy commodities and to develop energy-intensive industries.

EU's climate policy

The EU has proposed to introduce more stringent climate protection regulations by 2030. They will provide for further cuts in CO₂ and other greenhouse gas emissions and for an increased share of renewables in the energy mix. Highly efficient and technologically advanced, the Gdańsk refinery is well braced for these changes.

Accelerating advances in technology:

Electric and hybrid vehicles

The intensive development in the area of hybrid and electric vehicles is one of the key factors to contribute to the projected decline in demand for liquid fuels.

Industry 4.0

Modern technologies, e.g. advanced analytics, big data, automation, robotics or 3D printing, are becoming increasingly widespread in today's industry. They are applied to enhance production efficiency and reduce costs, with complex and large-scale production processes appearing to benefit the most from the fourth industrial revolution.

Weakening demand for oil products in EU – energy efficiency

Efficiency measures taken in Western Europe will also slow the growth of demand for fuels in Central and Eastern Europe. However, it is the still growing CEE market that is considered to be promising in the coming years. By 2025, it is forecast to see a 4% increase in demand for transport fuels (gasoline, diesel oil, light heating oil).

Growing competition on dynamic market:

New refining capacities in the Middle East and Asia

To diversify their operations and expand their value chain, Middle East countries are building new refining capacities which will increase competition in the global refining market in the future.

Change in the oil products import and export directions – The US as an oil & gas exporter

Recent years have seen major changes in oil imports and export directions. In the wake of the shale revolution, the U.S. has become a major player in the global energy sector. An importer has turned into an exporter. For the Middle East, this necessitates search for new export directions, which in turn renders the European market more appealing to oil producers (given its geographical proximity). In addition, with the lifting of international sanctions, Iran has returned to the global market as an exporter of oil to various regions, including in particular India, China and Europe (together with the U.S., these three account for half of the global oil demand).

Poland's energy security:

Own energy sources

Expansion of the production segment (LOTOS Petrobaltic) through diversification of the current upstream portfolio and purchase of new upstream assets (including in new, though stable, geographic locations) creates an opportunity to enhance the segment's efficiency. Potential risks include the scale of the upstream sector on the one hand (globally, LOTOS is considered a minor player) and considerable uncertainty as to oil prices in the future on the other (especially in the context of the U.S. shale revolution and the development of new engine technologies).

Supply chain diversification and flexibility in feedstock procurement

With access to a seaport, the LOTOS Group is able to adopt a flexible approach and purchase a wide range of oil grades from across the world. Our state-of-the-art refinery is characterised by great flexibility in processing of crude oil. This enables us to take advantage of the current market conditions and buy crude at competitive prices, and consequently to reduce our largest cost item. The risk lies in maintaining operating efficiency – frequent changes in the composition of feedstock require a thorough knowledge of refining facilities and of the market, as well as quick verification of suppliers.

Our strategy > Value Creation Model > How our model works

How our model works

The LOTOS Group's business is divided into **three segments** which together **comprise a complete value chain** – from exploration to sales of finished products.

1. Crude oil and natural gas exploration and production / Upstream segment

Exploration and production operations carried out by the Company allow it to diversify revenue and optimise total margins while reducing its dependence on business cycles in each market segment. The acquisition of new production licenses is aimed at improving our competitive edge.

The LOTOS Group produces crude oil and natural gas from the following sources:

- From **Polish** fields – crude oil with a small proportion of associated gas,
- From **Lithuanian** fields – crude oil,
- From **Norwegian** fields – gas and condensate (i.e. light crude), with natural gas predominating in the output mix.

Why are our production operations efficient?

- We can boast a thorough knowledge of the geographical region of the Baltic Sea Shelf and Norwegian Continental Shelf.
- We are highly competent in drilling and exploration work.
- We have the expertise and status of an operator.
- We are partners with strong and experienced players with international presence.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 4.1. Upstream segment and 4.4.1. Upstream segment's logistics

2. Refining operations/Refining segment

Operations in this segment start with the processing of the extracted hydrocarbons into a semi-product ready for further processing. This marks a key phase in the transformation of manufacturing capital, after which the Company has a marketable product. Our refinery, with the annual processing capacity of approximately 10.5m tonnes of crude oil, is one of the most advanced and youngest refineries in Europe.

Why are our refining operations efficient?

- We operate state-of-the-art and technologically advanced production units located in one of the most modern European refineries with the annual processing capacity of approximately 10.5m tonnes of crude oil.
- We rank first in Poland and high in Europe in terms of the Nelson Complexity Index (crude oil processing complexity ratio).
- With our refinery's technological configuration, coupled with its location advantages, we enjoy significant flexibility in selecting oil grades. This makes it possible to smoothly adapt the production volumes for individual finished product groups to the domestic demand and export opportunities.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 4.2. Downstream segment – crude oil refining

3. Sales and logistics / Marketing segment

The LOTOS Group markets its products in Poland (sales to foreign companies operating in the country) and on foreign markets (exports by sea and by land). LOTOS Group companies target their sales at individual sectors, i.e. fuels, lubricants, and bitumens. Products of the LOTOS Group are available in Poland and abroad. Engine oils are sold in 45 countries. The Company is among the leaders in the domestic market of road bitumens.

Why are our marketing operations efficient?

- The LOTOS Group manages a chain of 487 conveniently located service stations all over the country.
- We are the leader of the promising MSA market; our service station chain includes 17 Motorway Service Areas along the A1, A2, A4 and A6 motorways, as well as S3 and S7 expressways.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 4.3. Downstream segment – crude oil refining and 4.4.2. Downstream segment's logistics

There are three phases in the operation of our value chain, which can be matched to the business segments: upstream, refining and marketing:

- **Creating value** – performed through the "oil and gas exploration and production" phase in the upstream segment;

- **Adding value** – performed through the "refining and marketing" phase in the refining and marketing segments;
- **Making a return** on investments, known as 'monetising' – performed through the "sales and logistics" phase in the marketing segment.

Our strategy > The LOTOS Group's growth strategy

The LOTOS Group's growth strategy

→ Our vision is to grow in a stable and sustainable manner. We intend to achieve this by implementing the growth strategy for 2017–2022.

[Presentation of the LOTOS Group Strategy for 2017-2022](#) 

Our strategy > The LOTOS Group's growth strategy > 2016: work on the LOTOS Group's strategy

2016: work on the LOTOS Group's strategy

In 2016, Grupa LOTOS carried out extensive analyses to develop a strategic plan for 2017–2022. The Supervisory Board actively participated in the development of the new strategy: nine panel sessions with the Board were organised, devoted to defining strategic objectives.

The strategy development began with identifying growth directions and analysing the LOTOS Group's current assets. In this way we identified the directions and assets that offer prospects/opportunities for value creation in the next five years.

Work on the 2017–2022 strategy was guided by the following objectives:

- Resumption of regular dividend payments
- Sustainable and effective development of complementary business segments
- Integrated margin optimisation
- Poland's energy security, supported by diversified sources of raw materials.

The strategy has been widely consulted throughout the LOTOS Group during numerous meetings with the management and employees of the LOTOS Group companies. The Controlling Team contributed strongly to the final document by building a financial model that enabled simulation of various macroeconomic scenarios, definition of strategic paths for strategic KPIs, and detailed allocation of objectives to the LOTOS Group's individual business segments.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 2.3. Stability and sustainable growth – LOTOS Group Strategy 2017–2022

Chapter 2.1. Summary of execution of the 2011–2015 strategy

We are lengthening the value chain

For the LOTOS Group, 2016 was a time of hard work not only on the new strategy, but also on the development of products and services which would build the Company's competitive edge in the long term. The expertise gained during product development supported the ongoing work on the LOTOS Group's strategy for the next five years. As a result, the following new projects were carried out at the LOTOS Group companies in 2016:

- The LOTOS Group expanded the pool of global customers. LOTOS-Air BP started deliveries of aviation fuel to Emirates Airline and Air China.
- LOTOS Paliwa introduced non-fuel services and products at its service stations, together with a dedicated sales model. Those initiatives translated into a record high performance in 2016 in terms of retail fuel sales, with LOTOS Paliwa's adjusted EBITDA for 2016 reaching PLN 156m.

- LOTOS Kolej opened its new, sixth Transport Division in Poznań, which is used to develop its services in Germany.
- LOTOS Kolej started to transport grains and fodder after it had been certified for compliance with the GMP+ B4 standard. The company operates its own new rail cars.

Our strategy > The LOTOS Group's growth strategy > Ambitious targets – twofold growth of EBITDA

Ambitious targets – twofold growth of EBITDA

Presentation of the growth strategy for 2017–2022 (EBITDA to double in 2019–2022)

One of the objectives of the LOTOS Group's strategy for 2017–2022 is to stabilise the LOTOS Group's performance on the difficult oil market, and to maintain stable and sustainable growth in the following key business areas:

- Exploration and production,
- Manufacturing highest-quality fuels,
- Maintaining emergency stocks to build Poland's energy security,
- Technological advancement of the refinery and implementation of innovations.

In 2019–2022, we intend to double our LIFO-based EBITDA, from about PLN 2bn in 2015–2017 **to some PLN 4bn**. We plan to allocate PLN 9.4bn to capital expenditure until 2022.

Capital expenditure will be made in line with a detailed action plan, which for the next two years (2017–2018) provides for focusing on the development of the **B8 field** and the completion of the **EFRA Project**. We will also put emphasis on supporting innovation implementation processes.

Our strategy – five objectives

The LOTOS Group's strategic objectives for 2017–2022 are:

Effective use of assets along the value chain.

Meaning: use of production licences, further optimisation of refining technologies, new products and alternative fuels.

- 1.1. New, safer concept for developing a balanced upstream portfolio
- 1.2. Competitive edge with innovative technologies and new products
- 1.3. LOTOS Energy Hub in retail and care to ensure high standards in quality

Processes which guarantee stability.

Meaning: consistent and repeatable reduction of operating expenses and optimisation of margins along the value chain

- 2.1. Increased resilience to adverse external conditions thanks to low costs

- 2.2. Excellence in integrated margin management and diversification of feedstock sources

Readiness to embrace innovation.

Supported by: dedicated funds, a new model of collaboration with research centres, and real use of our employees' potential.

- 3.1. Setting up a fund to finance implementation of growth projects
- 3.2. Use of own experts and infrastructure to create a new research and development model in partnership with research institutions

Active opportunity and risk management.

Meaning: greater flexibility in responding to risks and faster identification of business opportunities.

- 4.1. Strong culture of open dialogue and early response to risk symptoms
- 4.2. Risk management to optimise value for stakeholders

Strong team, coherent CSR story and safety.

Meaning: greater responsibility for the wider environment. Building national energy security, diversifying supplies of raw materials and fuels, OHS, cyber security and social responsibility.

- 5.1. Talent development as a key source of competitive advantage
- 5.2. Integrated CSR policy
- 5.3. Robust safety culture

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 1.3. Corporate Social Responsibility

Chapter 2.4. [CORPORATE SOCIAL RESPONSIBILITY strategy](#)

Our strategy > The LOTOS Group's growth strategy > Risks related to the LOTOS Group's strategy

Risks related to the LOTOS Group's strategy

The key material risks that may affect the LOTOS Group's strategy implementation include:

Macroeconomic risk – the risk of changes in the macroeconomic environment, including oil prices, foreign exchange rates, crack spreads on refining products, and growth of Poland's GDP. Adverse developments of any of these can significantly affect the feasibility of achieving our financial targets:

- **Oil prices affect the LOTOS Group's largest cost category.** In the past, oil prices were negatively correlated with refining margins.
- **Exchange rate movements** (in particular, the USD/PLN exchange rate) are important because a large part of our cost base is denominated in USD, while revenue (from fuel sales in Poland) is generated in PLN.
- Changes in **crack spreads on refining products** may have a material adverse effect on our revenue in the worst-case scenario.
- A significant decline or slowdown of **Poland's GDP** would directly affect the demand for the LOTOS Group's products and its revenue.

Risk of a delay in the execution of key projects – the LOTOS Group is currently implementing a number of key projects, such as EFRA, B4B6, B8, YME, FGD and Langfjellet, whose impact on EBITDA is estimated at tens or hundreds of millions of Polish złoty. Any significant delay in the execution of those projects would have a tangible impact on the achievement of our strategic objectives (in particular EBITDA or CAPEX).

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 7.4. Material agreements and court proceedings in 2016



LOTOS Group
Integrated Annual Report 2016

04

READINESS TO EMBRACE INNOVATION

Readiness to embrace innovation > Innovation Our approach

Innovation Our approach



THE GLOBAL GOALS
For Sustainable Development



Our approach to innovation:

- Makes innovative projects **an integral part of all investment projects.**
- Seeks synergies between the needs of the company and benefits to the environment, especially to the natural world. The **technologies we use are ahead of the increasingly stringent environmental protection** standards and regulations.
- Is based on the assumption that **there is no single pattern of innovation-driven operations** in the refining industry, therefore each company, including the LOTOS Group, seeks its own way. We do not merely rely on the manufacturer's knowledge but we also **develop proprietary solutions.**
- Takes into account the fact that growth of the refining business requires application of state-of-the-art technologies and systemic solutions in the organisation's structure.
- Results in a regular analysis of new technologies with a view to **improving them to meet refinery's needs.**
- **Uses synergies between various industries.** We collaborate with other businesses in creating innovations.
- Recognises the fact that innovative projects **bolster our competitiveness.** That is why we have assigned strategic importance to their development and implementation and made them a foundation for one of the five objectives in the LOTOS Group's strategy for 2017–2022.

Readiness to embrace innovation > Innovation Our approach > We invest in state-of-the-art technologies

We invest in state-of-the-art technologies

[OG14]

Deep oil processing technologies

Our innovative projects completed so far focused on developing technologies for manufacturing products which ensure higher margins on the processing of crude oil. However, sales volumes of those products are smaller than our output of fuels and range from a few to a few dozen thousand tonnes per year.

Therefore in 2016, as in the previous year, as part of the EFRA Project we invested in cutting-edge deep oil processing technologies to increase our production of high-quality fuels.

Advantages to be gained by the LOTOS Group following completion of the EFRA Project:

- Our refinery will be able to add heavier (and thus cheaper) crudes from, e.g. Canada or Venezuela, to its feedstock mix.
- They will be processed into the highest quality fuels and coke that will be used in power generation.
- A unique solution will be applied at the DCU (the main component of the EFRA process line), which will make the Gdańsk refinery one of the most environmentally-friendly refineries in the world. An innovative Triplan technology used as part of the EFRA Project will make the DCU – globally considered to be a unit with a harmful impact on the environment - at our refinery a completely enclosed system.
- As early as in 2018 Grupa LOTOS will increase its volumes of high-margin products.

Phasing out unprofitable and environmentally unfriendly products

EFRA The end of heavy fuel oil

The main objective of EFRA is to ensure a more efficient use of heavy residue, which is the heavy end of crude oil now used to make heavy fuel oil or bitumens. When the project works are completed and the new units come on stream, each tonne of heavy residue will be processed into some 700 kg of fuels and 300 kg of coke. As part of the EFRA Project, as of 2018 the LOTOS Group will phase out heavy fuel oil from the production process as it yields negative margin and is not environmentally friendly.

UCOPure – purified oil

The UCOPure project, implemented by Grupa LOTOS in a consortium with Polymemtech Sp. z o.o., focuses on developing a new technology for processing unreacted oil from hydrocracking. **The aim of the project is to develop a new, world-class innovative technology making it possible to earn higher margins** by treating the unreacted oil stream into a product of much higher quality, which will be converted in further stages of the production process into main refinery products such as fuels.

- **UCOPure** is the only technology in the world that employs integrated **filtration** to remove **PAH** – heavy polycyclic aromatic hydrocarbons from unreacted oil from hydrocracking, and involves development and preparation of membranes and filtration systems used in the process.

The project is co-financed by the National Centre for Research and Development under the INNOCHEM sectoral programme. The consortium of Grupa LOTOS and PolymemTech Sp. z o.o. came fifth in the INNOCHEM competition, having scored 20 out of 22 points to be won.

Durable bitumens – MODBIT HiMA

In 2016, LOTOS Asphalt developed and commercialised **highly polymer-modified bitumens** – MODBIT HiMA.

- ➔ Such bitumens are used in the construction and maintenance of roads, airports and other hard surfaces.
- ➔ They are recommended for bitumen-aggregate mixtures used in highly durable layers of perpetual pavements which require > **high resistance to aging** > **resistance to fatigue and low-temperature cracking** > **and resistance to rutting**.
- ➔ The content of SBS 25/55-80, 45/80-80, and 65/105-80 polymers in those bitumens **is more than double that in modified bitumens** typically used in the wearing course of roads.

Readiness to embrace innovation > Innovation Our approach > Investing in efficiency

Investing in efficiency

→ In 2016, a blending online system for blending fuels was introduced at the Gdańsk refinery. The project increased the refinery's output and reduced its energy intensity.

How we reduce the refinery's energy intensity and costs – innovation in 2016

At the LOTOS Group we are consistently investing in technologies reducing energy intensity, which makes our business more environmentally friendly and economically efficient.

New blender – online fuel blending

In 2016, in order to further improve the efficiency of our refinery's production processes we launched a **new innovative blender** for blending gasoline and diesel oil. The project to upgrade and extend the existing unit was designed by the LOTOS Group engineers.

Blender is a system designed to blend fuels **online, i.e. in the pipelines**, which supplements the traditional method where all the components are blended in tanks. Online blending is a **key functionality of a modern and smart refinery**.

Completion of the investment project increased our production efficiency through:

- Diversifying the methods of product blending,
- Facilitating adaptation to changes in the refinery operation,
- Reducing the time for blending a batch by half,
- Reducing the number of re-blends,
- Automating the blending process.

The scope of product quality checks will increase, too.

Readiness to embrace innovation > Creative employee engagement

Creative employee engagement

- In 2016, we tested the employee innovation management system through a pilot edition of the 'Turn an Idea into Reality' competition.
- In 2016 and 2017, 194 innovative projects were submitted in the competition to improve the operating efficiency of various areas in the three companies: LOTOS Asphalt, LOTOS Oil, and LOTOS Petrobaltic.

Innovative employees – the 'Turn an Idea into Reality' competition

The purpose of the competition, launched in 2016, is to creatively engage the employees and use their innovative potential. In 2016 and 2017 (as at July 2017) the competition was entered by LOTOS Asphalt, LOTOS Oil, and LOTOS Petrobaltic employees, who worked on their projects either in teams or individually.

Summary of the projects at the three companies: most of the projects related to improvements in **production (59)**, then **trading (29)**, and finally **logistics (22)**. Most of the projects were submitted by employees of LOTOS Asphalt (77).

The 'Turn an Idea into Reality' competition is based on the following assumptions:

- The submitted projects should be capable of being implemented in the future and should bring measurable economic benefits to the company,
- The competition is run in a transparent manner, its rules are known and clear to all the participants,
- Award-winning improvement projects will be implemented at the LOTOS Group.

Summary of the competition results at individual companies:

Innovative ideas put forward by LOTOS Asphalt employees

In 2016, a pilot edition of the competition was run at LOTOS Asphalt as part of a project to test the innovation management system at the LOTOS Group.

- The competition jury received **77 submissions**, presenting ideas on how to enhance processes in various areas of the organisation. Most of the projects related to **production (19) and logistics (14)**. There were also projects pertaining to the IT (8), administration (7), or HR (6) areas.
- **47 employees**, that is more than **20% of the company's total headcount**, signed up for the competition.

- The winning project, aimed at optimising bitumen production, was **'Improving the Efficiency of Bitumen Modification with Polymers in the Process Units'**. The second place was awarded to the design of an application for road designers and building inspection offices, which can be used for verifying the credibility of trading partners, and the third – to a project entitled 'Bunker Receipt Generated Automatically by the SAP System'.
- The winners were given cash prizes from PLN 3,000 to PLN 10,000. Additionally, eight distinctions were awarded, and each of the distinguished participants received PLN 1,000.

Innovative ideas put forward by LOTOS Oil employees

- The competition jury received **69 innovative projects**, including 52 individual and 17 team submissions.
- The competition was entered by 43 LOTOS Oil employees (33 men and 10 women, representing **over 15% of the company's total workforce**), of whom 25 work in Czechowice and 14 in Gdańsk.
- The winning project was **'Manufacturing and Sale of Process Oils'**. It envisages manufacturing of process oils from raw materials available at the LOTOS Group. The oils will be used in rubber and tyre manufacturing and in related industries. The second place was awarded to a project related to the trade area, and the third – to a project from the logistics area, entitled 'Flexes to the Tracks'.

Innovative ideas put forward by LOTOS Petrobaltic and SPV Baltic employees

- The competition was held at the company in the first half of 2017. **48 projects were submitted in total**, including 40 from individuals, and 8 from teams.
- The competition was entered by a total of **35 employees of LOTOS Petrobaltic** (9 women and 26 men), which represents almost **9% of the LOTOS Petrobaltic Group's** entire workforce.
- The winning individual project was **'Purchase and Installation of a Container Steam Boiler House Adapted to Be Fed with Separated Gas from the B8 Field'**. The second place was won by a project entitled 'Use of Gasoline Separator to Separate Natural Gasoline from Gas Burnt in Outboard Flares', and the third by 'Migration and Integration of Platform Warehouses and Deposits from the Onshore Base to the SAP System'. The winners were given cash prizes.
- **All the award-winning projects will be implemented and will bring measurable economic benefits to the companies.**

Company name	Number of projects	Active innovators as % of workforce
LOTOS Asfalt	77	19,5
LOTOS Oil	69	14,7
LOTOS Petrobaltic	48	9
Areas		
Trade	29	
Refining	57	
Exploration	2	

Company name	Number of projects	Active innovators as % of workforce
Drilling	2	
Logistics	22	
Finance	3	
IT	15	
Administration	16	
Marketing	11	
HR	10	
Other*	27	

* OHS, training/certifications, development, procurement, employee integration, business practices and public relations, work organisation, communication.

Readiness to embrace innovation > Trading and other partners

Trading and other partners

[G4-15] [G4-16]

In 2016, we implemented projects extending beyond the refining business, working with research centres, the manufacturing industry and local governments. We actively seek partnerships that allow us to build innovation and technological advantage over competitors.

Smart specialisation partnerships

LOTOS Group companies are active participants in two out of four research and development areas of the **Pomerania Smart Specialisation (ISP) project**.

- Grupa LOTOS, LOTOS Lab, LOTOS Asphalt, LOTOS Oil and LOTOS Petrobaltic have been included in the 'Eco-Efficient Technologies for the Production, Transmission, Distribution and Consumption of Fuels and Energy and for Construction' area or **ISP3**.
- In parallel, LOTOS Petrobaltic participates in 'Offshore, Port and Logistics Technologies' or **ISP1**, which covers floating and stationary structural components of offshore wind farms and **production platforms**, unmanned marine, land and air vehicles for monitoring and inspection of offshore facilities, as well as systems for **removal of petroleum contamination from water and environmental monitoring systems**.



What **Smart Specialisation** means in practice is that public funds within the EU will be spent to unlock and harness the potential of the areas (**like Pomerania**) and sectors (**like extractive industries**) which stand out in a given region in terms of **significant potential for rapid growth** and international expansion.

The ISP programme assumes that its participating projects, which now include the research initiatives of LOTOS Group companies, will have **easier access to funding** under the 2014–2020 Regional Operational Programme for the Gdańsk region, Smart Growth Operational Programme, and HORIZON 2020. Thanks to involvement in the ISP project, we established **collaborative relationships with the Marshal Office of the Gdańsk region and the academic community**.

We support start-ups – working with start-up incubators

Our subsidiary LOTOS Paliwa has teamed up with the Academic Business Incubators to support new business ventures. The initiative helps new businesses to reduce operating costs.

Our partner start-ups are offered **lower fuel prices** and discounts on products and services purchased at LOTOS service stations. Last year **2,200 early stage companies housed in 50 incubators** were given attractive fuel discounts. By forging relationships with businesses at an early stage, we lay the foundations for long-term collaboration.

A special edition of the LOTOS Biznes fleet card for businesses participating in the Academic Business Incubators programme provides them with an option to continue the business relationship with us and use fuel discounts even after they leave the incubator. Micro-enterprises and small businesses are an increasingly important customer group at our service stations.

DIRECTION: THE FUTURE – OUR RESEARCH PROJECTS

Readiness to embrace innovation > Direction: the future – our research projects >
LOTOS here and now – hydrogen, CNG/LNG

LOTOS here and now – hydrogen, CNG/LNG

New LNG reloading terminal on the TEN-T map

At the LOTOS Group we deliver projects co-funded by the EU that enable us to develop and implement innovative technologies and logistics solutions. One of them is **a project to construct a small-scale LNG terminal in Gdańsk** to operate as a local hub for transshipment, bunkering and distribution of LNG to end users and service stations.

The feasibility study of the project was awarded EU funding in the CEF-Synergy competition.

The initiative is related to the project to expand reload capacity at the LNG terminal **in Świnoujście** from 5 bcm to 7.5 bcm of LNG annually. The LNG hub in Gdańsk, combined with the capacity of the Świnoujście terminal, **will enable development of the local LNG market in Poland.**

The LNG hub in the Port of Gdańsk will bring the following benefits:

- It will provide infrastructure to use LNG as a marine fuel at TEN-T ports in Gdańsk, Gdynia and Sopot,

> TEN-T stands for the Trans-European Transport Network and ensures interconnectivity of infrastructure projects across the EU. It is the backbone for transport in Europe on which the EU will focus to enhance cross-border connections, **fill missing links and remove bottlenecks.**

- It will prompt construction of local LNG storage infrastructure enabling LNG to be used as an energy source (in refineries or ships moored in ports) or as fuel for marine and land transport **along the TEN-T Baltic Sea-Adriatic Sea corridor,**
- It provides an option to connect LNG storage facilities to the high-pressure gas network of the LOTOS refinery,
- It will prompt construction of infrastructure for distribution of LNG to heat and power plants in **regions unserved by the gas pipeline network in north-eastern Poland.**

Hydrogen as an energy source – HESTOR

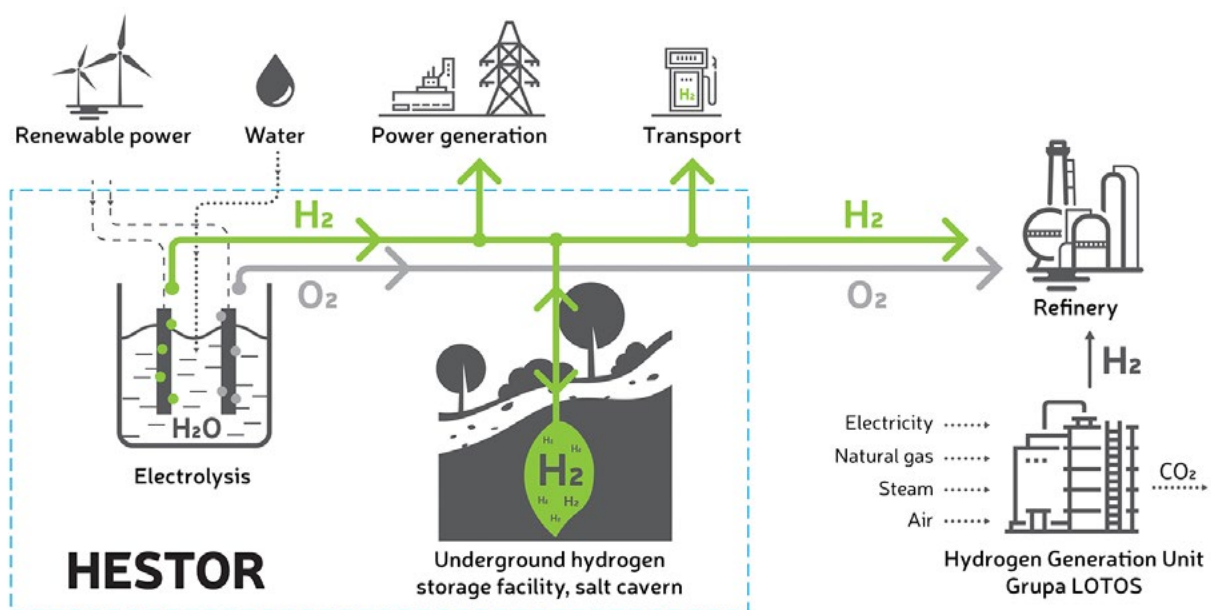
→ At the LOTOS Group we are analysing the efficiency of storing hydrogen obtained from surplus renewable energy.

The research project combines environmental protection with innovation and aims to **develop a technology for storing hydrogen as an energy carrier**. Grupa LOTOS is the leader of the project consortium comprising AGH University of Science and Technology in Kraków, Silesian University of Technology, Warsaw University of Technology, CHEMKOP and GAZ-SYSTEM.

The purpose of the project is to **investigate the efficiency of salt-cavern storage** of hydrogen produced from excess wind and solar power through electrolysis. Hydrogen obtained in this way could be used in technological processes at the **refinery** and for electricity generation in gas turbines. If successful, the project could lead to a substantial reduction in CO₂ emissions.

> The central element of HESTOR is generation of **hydrogen from excess renewable energy** and directing it to refining processes or for storage in salt caverns.

> One of the scenarios contemplated by the HESTOR project is using hydrogen to **power fuel cell vehicles in urban agglomerations**, including public transport vehicles, at hydrogen compression and refuelling stations, to cut exhaust emission levels in cities.



The HESTOR project, or underground caverns for storing surplus electricity in the form of hydrogen, will deliver the following environmental benefits over ten to twenty years:

- Solution for storing and recovering surplus energy in an environmentally-friendly way with no additional emissions generated, as hydrogen is the cleanest energy carrier,
- Environmental safety of underground energy storage facilities, similar to that of existing underground gas, oil and fuel storage facilities,
- Higher efficiency and environmental safety of underground storage relative to hydro power plants,
- Better use (in technical and economic terms) of periodic energy excess from power plants and combined heat and power plants, resulting in a substantial reduction of CO₂ emissions,
- Easier integration of large wind and solar farms into the power system,
- Reduced combustion of conventional fossil fuels,
- Advancement of fuel cell vehicles and reduction of exhaust emissions,
- Possibility of utilising carbon dioxide by using hydrogen in methane production.

[Readiness to embrace innovation](#) > [Direction: the future – our research projects](#) >
 LOTOS Energy Hub – modern refuelling

LOTOS Energy Hub – modern refuelling

Our concept of LOTOS Energy Hub is an extension of the HESTOR project and the new LNG hub in the Port of Gdańsk. The project envisages the rollout of modern multi-energy service stations **that would enable the refuelling of vehicles** with conventional and alternative fuels **like LNG, CNG, hydrogen and electric energy**.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 2.2. Status of key development projects in 2016 (in terms of subtitle „Innovation and development projects”)



LOTOS Group
Integrated Annual Report 2016

05

EFFICIENCY IN ACTION

Efficiency in action > Value chain

Value chain

UPSTREAM SEGMENT



Asset portfolio spanning three countries: Norway, Poland, Lithuania
 2P hydrocarbon reserves: 72.7m boe

DOWNSTREAM SEGMENT



One of Europe's most technologically advanced refineries



Poland's third largest network of 487 service stations.
 Wholesale of fuels and other petroleum products (bitumens and oils)



Efficiency in action > Overview

Overview

In 2016, the LOTOS Group consistently focused on its core business, i.e. exploration for and production of hydrocarbons, crude processing, and trading in petroleum products, while developing a strategy for those areas and defining objectives to be achieved in 2017–2022.

Crude oil and natural gas exploration and production

The LOTOS Group produces oil and natural gas from fields located on the Norwegian Continental Shelf. It is also the only producer of hydrocarbons in Poland's Exclusive Economic Zone of the Baltic Sea. Upstream operations are also conducted in Lithuania.

In 2016, our Upstream segment delivered record high hydrocarbon production, driven by output from the B3 and B8 oil fields in the Baltic Sea in Poland, and from the Heimdal and Sleipner upstream assets in Norway.

Strategic exploration and production areas

Norwegian Continental Shelf

In 2016, the Norwegian Continental Shelf (the Heimdal and Sleipner fields) accounted for approximately **76%** of the LOTOS Group's total hydrocarbon output. The LOTOS Group's production from those fields includes natural gas (approximately 75%) and light crude oil (condensate) (approximately 25%).

After in January 2017 LOTOS Norge was awarded interests in five new licences, the company now holds 25 licences on the Norwegian Continental Shelf, including:

- Interests in ten hydrocarbon exploration and appraisal licences in the North Sea and the Norwegian Sea, with LOTOS E&P Norge AS being the operator for one licence,
- Interests in eight licences at a pre-development and development stage,
- Interests in seven production licences in the North Sea.

Baltic Sea – Polish Economic Zone. > Lithuania

Within the LOTOS Group, all exploration, appraisal, and production licences in the Polish zone of the Baltic Sea are held by LOTOS Petrobaltic (or companies in which it holds equity interests). The B3 and B8 fields, i.e. Polish fields located in the Baltic Sea, account for **21%** of the Upstream segment's total output. The licences cover mainly crude oil and the associated gas.

LOTOS Petrobaltic is Poland's only company that engages in oil and gas exploration on the Baltic Sea shelf. In Poland, it holds or has an interest in 10 licences. It holds three joint exploration, appraisal and production licences for the Łeba, Rozewie, and Gotland areas, as well as the following four production licences: B3, B4, B6, and B8 – development work under those licences is performed by dedicated special purpose vehicles. The main player on the Polish market for onshore hydrocarbon licences is PGNiG, with whom LOTOS cooperates in two licence areas: Kamień Pomorski and Górowo Iławeckie. In the Kamień Pomorski licence area, drilling work began on the Stawno-1 exploration well in July

2017. Operations in the Młynary licence area are carried out by the LOTOS Group independently, without a partner.

Production and exploration work in Lithuania is carried out in eight onshore licence areas. All of the licences are joint licences, which means that they provide an authorisation for exploration activities and development of the fields, but also for production.

Refining

The LOTOS Group operates one of the most advanced and youngest refineries in Europe, with an annual processing capacity of approximately **10.5m tonnes of crude oil**.

- In 2016, as in previous years, the main type of crude processed by the refinery was Russian REBCO, whose share in the total throughput stood at close to 75% and was smaller than in previous years.
- Oil from other sources, including approximately **220,000 tonnes of crude** supplied by the LOTOS Petrobaltic Group, accounted for the balance of the crude feed.
- In 2016, the refinery processed **10.4m tonnes of crude**, the highest throughput in Grupa LOTOS' history.

The key groups of products obtained from crude oil processing at the refinery are:

- Fuels (unleaded gasoline, diesel oil and light fuel oil),
- Heavy fuel oil,
- Bitumens,
- Aviation fuel,
- Naphtha,
- Propane-butane (LPG),
- Base oils.

Marketing

In 2016, the LOTOS Group's Downstream segment sold 11,061 thousand tonnes of products, **up 1.3% year on year**. Diesel oil had the largest share in the total sales volume – 43.4%.

Fuels:

The LOTOS Group sells fuels (unleaded gasoline, diesel oil and light fuel oil) in Poland and on foreign markets. LOTOS Paliwa operates solely on the domestic market, and its main customers include fuel companies and the chain of LOTOS service stations.

Other petroleum products:

Sales of other petroleum products are managed by Grupa LOTOS, its subsidiaries and jointly-controlled entities. LOTOS Oil sells lubricating oils in Poland and abroad, chiefly through distributors and authorised customer service points. LOTOS Asphalt offers road bitumens to customers in Poland and abroad, mainly construction companies. LOTOS-Air BP Polska's offers aviation fuel in Poland only; the product is purchased by airlines (the 'into plane' segment) and wholesale market operators.

Efficiency in action > Upstream

Upstream

- The LOTOS Group produces hydrocarbons from offshore and onshore fields. Three-fourths of our volumes come from fields in Norway, while the balance is produced in the Baltic Sea and in Lithuania.
- As at December 31st 2016, the LOTOS Group's 2P (proved and probable) reserves were at 72.7m boe.
- Daily production in 2016 was approximately 26,000 boe, and is to reach 30,000–50,000 boe/d by 2022.

In recent years, efforts were made to develop a balanced upstream portfolio in Poland and abroad. Our goals include:

- Maintaining a steady and stable growth of hydrocarbon production,
- Ensuring energy security for Poland,
- Diversifying supply directions,
- Extending the margin chain of the Gdańsk refinery.

Principal activities and performance in 2016

Record-high production

- > In 2016, our Upstream segment delivered **record high hydrocarbon production of 9.8 mboe**, driven by output from the **B3 and B8** oil fields in the Baltic Sea in Poland, and from the **Heimdal and Sleipner** upstream assets in Norway.¹
- > In 2016, the hydrocarbon output remained at approximately **26,700 boe/d**.

In line with the expectations, following the acquisition of the Sleipner production assets on the Norwegian Continental Shelf in December 2015, the LOTOS Group's production of oil and natural gas increased significantly. Record-high production was reported as early as in the first quarter of 2016, with the average daily output close to 30,000 boe.

¹ Production from the Norwegian assets commenced in January 2017.

- > The Heimdal and Sleipner areas are mature fields, expected to remain in production for a few years. The Heimdal field is planned to be abandoned in 2019–2021, and the Sleipner field in 2024–2025.

[OG1]

Five new production licences in Norway

As in previous years, in 2016–2017 **new licences** were acquired with a view to increasing production in the future.

In January 2017, LOTOS Exploration & Production Norge accepted an offer placed by Norwegian authorities for five new production licences on the Norwegian Continental Shelf. The licences cover '**mature areas**', i.e. areas where oil and gas deposits are still present, and their extraction is facilitated by existing infrastructure.

LOTOS Exploration & Production Norge is engaged in oil exploration and production activities in the North Sea and the Norwegian Sea. At the end of 2016, the company held interests in **20 licences** on the Norwegian Continental Shelf.

Młynary onshore licence

In 2016, the LOTOS Group was awarded **one new onshore licence – Młynary**. Under the licence, granted by the Ministry of the Environment for three years, LOTOS Petrobaltic is authorised to carry out oil and gas exploration and appraisal activities in the Młynary onshore area, between Elbląg and Braniewo, i.e. to acquire 200 km of seismic data, and – optionally – to drill two boreholes of up to 4,500 meters deep.

LOTOS Petrobaltic is a company responsible for the development of the Upstream segment within the LOTOS Group.

LOTOS Petrobaltic Group's crude oil and natural gas resources (2P) as at December 31st 2016:

	Crude oil [million tonnes]	As [mboe*] equivalent	Natural gas [bcm]	As [mboe*] equivalent	Total for Poland [mboe*]
2015					
Poland	4,815	37,381	0,509	3,2	40,581
Norway	0,982	4,99	2,246	14,125	19,115
Lithuania	0,927	7,138	-	0	7,138
Total	6,724	49,509	2,755	17,325	66,834
2016					
Poland	4,577	35,538	0,482	3,029	38,567
Norway	1,22	9,142	2,934	18,452	27,594
Lithuania	0,848	6,536	-	-	6,536
Total	6,645	51,216	3,416	21,481	72,697

* Barrels of oil equivalent.

LOTOS Petrobaltic Group's production volumes in 2016

	Crude oil [million tonnes]	Natural gas [bcm]	Total [mboe*]
2015			
Poland	0,162	0,018	1,374
Norway	0,389	0,288	2,484
Lithuania	0,063	-	0,486
Total for the LPB Group	0,315	0,307	4,344
2016			
Poland	0,238	0,027	2,014
Norway	0,242	0,879	7,338
Lithuania	0,053	-	0,402
Total for the LPB Group	0,532	0,906	9,754

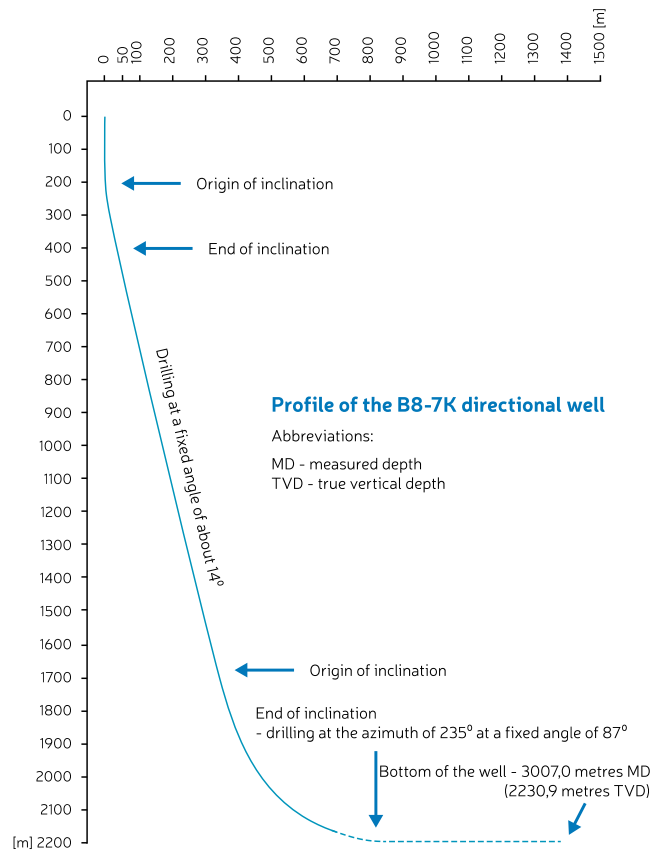
* Barrels of oil equivalent.

Efficiency in action > Upstream > Key growth-oriented projects of the LOTOS Group

Key growth-oriented projects of the LOTOS Group

Objectives, activities, results in 2016


Profile of the B8-7K horizontal well



Our key growth-oriented projects carried out in 2016 in the Upstream segment include:

B8 field development – doubling of oil production in the Baltic Sea

In September 2015, LOTOS Petrobaltic started profitable production from the B8 field, which – despite a 60% decline in crude oil prices – has made a positive contribution to the company’s financial standing. In 2016, **our oil production in the Baltic Sea doubled**, partly as a result of completion of the LOTOS Group’s first ever drilling of the B8-7K **horizontal well** using the innovative drilling technology RSS. Bringing the well on stream allowed us to enhance oil recovery from the field.

 The B8 site is the **third largest oil production facility** in Poland; the field holds the largest recoverable oil reserves in the **Polish part of the Baltic Sea**. Its 2P reserves are 29.5 mboe (chiefly oil), current production is **2,800 boe/d**, and planned production – 5,000 boe/d.

Launch of the Utgard Project

In 2016, we made and formalised a decision to start the Utgard project. Its objective is to develop a new field in Norway through a tie-in with the nearby **Sleipner** area infrastructure, and to launch hydrocarbon production in **2019/2020**. The field's 2P reserves are **8.1 mboe** (55% crude oil and 45% natural gas), with planned daily production volumes of 4,000 boe/d.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 2.2. Status of key development projects in 2016 (in terms of subtitle „Innovation and development projects”)

Upstream strategy for 2017–2022

Our main upstream objectives for the next 5 years are sustainable growth, continued development of a balanced upstream portfolio, and position of a production leader in the Baltic.

Sustainable growth of the Upstream segment will be pursued by the LOTOS Group through **presence on predictable markets**, i.e.:

- Expansion in Norway (centered around hubs, Norwegian Continental Shelf) and Poland (Baltic Sea), and
- Geographical diversification in response to market conditions.

Development of a balanced upstream portfolio will consist in **diversification of production sources and licence structure**, i.e.:

- Increasing involvement in field development projects,
- Gradually increasing the role of oil and gas exploration,
- Expanding the asset portfolio by capturing market opportunities,
- Reducing the share of mature fields in the portfolio.

In practical terms, the LOTOS Group strategy for 2017–2022 means:

 **Development of the following fields: B4/B6 (gas), Utgard, FriggGamma Delta, and YME,**

- **Production from the following fields: B8, B3; Lithuanian fields; Heimdal and Sleipner (70% crude oil, 30% natural gas),**
- **Exploration for new oil and gas deposits under onshore and offshore licences,**
- **Production of crude oil and natural gas at 30,000–50,000 boe/d.**

The upstream strategy is to be implemented in **two stages**. Its success metrics set for 2017–2018 are 2P reserves at approximately 60 mboe and production at approximately 22,000 boe/d. The corresponding targets for 2019–2022 are 2P reserves at more than 60 mboe and production at 30,000–50,000 boe/d.

Efficiency in action > Upstream > Safety management and industrial failure prevention

Safety management and industrial failure prevention

[OG5]

The LOTOS Group is committed to ensuring the highest production safety standards.

LOTOS Petrobaltic participates and employs its resources in annual oil spill prevention and response drills in Poland. Having such practical experience, our platform and vessel crews know how to act in the unlikely event of an emergency.

LOTOS Petrobaltic also has a mine rescue team responsible for rendering immediate emergency response in case of mine employees or other people on site being at risk of injury or death and for taking action where the safety of on-site operations is at risk. Rescuers take part in drills and competitions designed to test their teamwork and communications skills.

Environmental efficiency



THE GLOBAL GOALS
For Sustainable Development



[OG7]

Pursuant to our *Integrated Management System policy*, we have committed ourselves to “environmental protection, including minimising environmental footprint and raising environmental awareness of our employees and trading partners”. *The policy* lays down a number of procedures for various aspects of environmental protection, including carbon dioxide emissions monitoring, waste management and environmental monitoring.

We take the following measures to ensure environmentally efficient production:

In 2016, LOTOS Petrobaltic discharged a total of 10,571.862 cubic metres of wastewater, including the following quantities of precipitation water: 43.862 cubic metres discharged to surface water (the Martwa Wisła River), 10,528 cubic metres to the Baltic Sea, and 3,575 cubic metres to municipal utilities. The wastewater was treated by the organisation and by a wastewater treatment plant.

We monitor the quality of precipitation water discharged from LOTOS Petrobaltic onshore facilities to the Martwa Wisła River.

Our goal is to have as much waste as possible transferred to external waste management companies or to recover or recycle it.

In 2016, LOTOS Petrobaltic applied the following waste management methods:

- **Recycling of 4.9 tonnes of safe waste and 1.6 tonnes of hazardous waste,**
- **Recovery (including energy recovery) of 524.2 tonnes of safe waste and 56.35 tonnes of hazardous waste,**
- **Incineration or use as fuel of 7.22 tonnes of safe waste and 0.005 tonne of hazardous waste,**
- **Landfilling of 14.44 tonnes of safe waste,**

[OG7]

→ **200.82 tonnes** was the total volume of drilling waste generated as a result of using water-based drilling fluid.

LOTOS Petrobaltic ensured that substantially no operations would be carried out in **Natura 2000 protected areas** overlapping with **the Młynary licence area** (Region of Olsztyn). Pursuant to the licence agreement, they are excluded from the permitted area of Petrobaltic's operations under the licence, and no exploration activities carried out under the licence have or will have any negative impact on those priceless biodiversity reserves.

Under the Baltic Sea Action Plan, developed by HELCOM (Baltic Marine Environment Protection Commission – Helsinki Commission) and endorsed in 2007 by the Ministers of the Environment of the Baltic countries, offshore operations in the Baltic Sea are subject to the 'zero formation water discharges from offshore platforms' principle.

Therefore, a special **formation water re-injection system** was installed on LOTOS Petrobaltic's Baltic Beta platform to re-inject formation water into the rock mass. This has a positive effect on the environment and raises the reservoir pressure, improving its productivity. Trace amounts of water generated in the production process on the B8 field are pumped to a tanker.

[OG5]

Volume and disposal of formation or produced water

Total volume of formation or produced water by disposal method	Volume of formation or produced water [cubic metres]	Percentage of produced water
Reused	0	0.00%
Recycled	0	0.00%
Re-injected	415638	99.66%
Other	1429	0.34%
TOTAL	417067	100.00%

Refining



THE GLOBAL GOALS
For Sustainable Development



- The LOTOS Group operates one of the most advanced and youngest refineries in Europe and globally.
- In 2016, the Gdańsk refinery processed 10.4m tonnes of crude oil, thus utilising 99% of its total capacities.
- > In 2016, the LOTOS Group prepared for a maintenance shutdown scheduled for spring 2017, during which the refinery's units were connected with EFRA units.
- In 2016, the Gdańsk refinery had a Nelson complexity index of 10, indicating its high complexity and efficiency.
- The Risk Based Inspection (RBI) process applied at the refinery to manage industrial failure risk allows maintenance intervals to be extended from 4 to 5 years.

Efficiency in action > Refining > Principal activities and performance in 2016

Principal activities and performance in 2016

Record-high oil processing volumes


In 2016, the Gdańsk refinery processed **10.4m tonnes** of crude, the highest throughput in the LOTOS Group's history. Thus, the refinery utilised as much as 99% of its total annual capacities of 10.5m tonnes. **Every fourth barrel of oil** processed by the refinery was imported from sources other than markets east of Poland.


Maintenance shutdowns – Spring 2017

2016 was marked by preparations for the biggest maintenance shutdown in the Gdańsk refinery's history – **Spring 2017**. The preparations included selecting maintenance contractors, contracting deliveries of replacement equipment, and ordering metal materials, spare parts, and automation and electrical accessories.

The **Spring 2017** maintenance, carried out in March and April (**30 days** in total), covered 55 refining units, more than 1,100 apparatuses, approximately 1,000 pipelines, approximately 1,500 manual and automatic valves, fittings and other piping accessories, and approximately 2,000 automation accessories. The maintenance work involved approximately **3,500 personnel** from more than 100 contractors.

During the shutdown, most of the new **EFRA Project** units were connected to the existing units, which will allow their smooth start-up on completion of the project in 2018, without halting all the operations at the refinery.

- 

In 2016, the availability ratio of refining units at the LOTOS Group was **99.4%**.
- 

In 2016, there were a total of **16** maintenance shutdowns, lasting from 3 to 20 days, due to scheduled maintenance work and unscheduled, though standard, repairs.

Key projects

EFRA – towards effective refining

EFRA, that is the Effective Refining programme, is a continuation of the wider effort to technologically modernise the refinery, and completion of the deep crude oil processing chain, which was initiated by the modernisation under the 10+ Programme, closed in 2011. It involves an investment in a **Delayed Coking Unit**, designed to ensure more advanced conversion of crude oil.

Implementation of the EFRA Project, thanks to connecting new units with the existing ones at the Gdańsk refinery, will mean a higher yield of high-margin products per each oil barrel processed by the refinery. In practice, EFRA means that:

- The refining margin per barrel of oil processed will increase by approximately USD 2/bbl,
- The EFRA units will turn out approximately an additional 900,000 tonnes of high-margin fuels per year, which will add PLN 0.6bn to EBITDA annually.
- When the project work is completed and the new units come on stream, the LOTOS Group refinery will be able to process each tonne of heavy residue into some 700 kg of fuels and 300 kg of coke, without having to produce unprofitable heavy fuel oil.



The project is scheduled for completion **in the first half of 2018**. Completion of the EFRA Project will take the Gdańsk refinery's Nelson Complexity Index **above 10.5**. **In 2016, the figure was 10.**

- > **The Nelson Complexity Index represents** crude oil processing complexity ratio. The ratio reflects the intensity of investments in the refinery, potential fixed costs, and the refinery's ability to generate value added. The ratio of 10 or more is reported only for **state-of-the-art refineries**.

Summary of two years of implementation of the EFRA Project

- At the end of May 2017, the stage of completion of the EFRA Project was **73.8%** (above the planned 72.8%).
- At the end of December 2016, the progress of design, procurement and construction work was **54.1%**., almost 17% above the planned 37.2%.
- The project is progressing ahead of schedule mainly thanks to **shorter procurement and delivery times: +42.6pp**. Moreover, construction work is slightly ahead of schedule (+3.3pp).

Our achievements under the EFRA Project in 2016

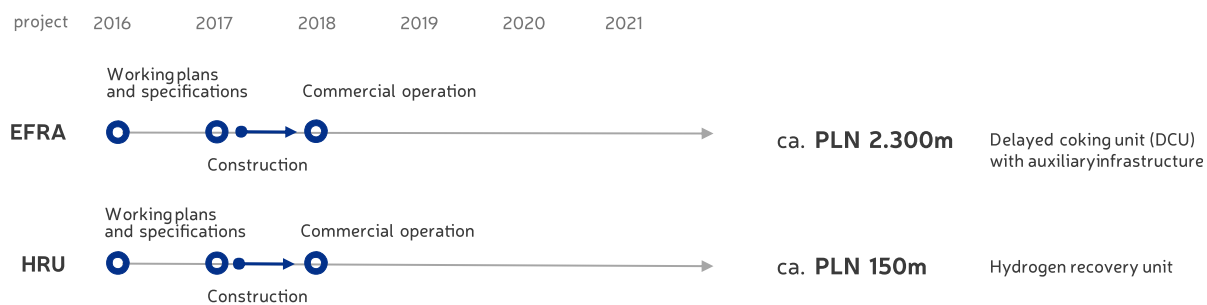
- In 2016, all necessary building permits required under the project's credit facility agreement with financing institutions were obtained,
- and all contracts for construction and modernisation of the units, auxiliary facilities and infrastructure were signed.
- Work on engineering design of the key Delayed Coking/Coking Naphtha Hydrotreating Units (DCU/CNHT), Hydrogen Generation Unit (HGU) and Hydrowax Vacuum Distillation Unit (HVDU) was nearing completion, and the necessary procurement activities were under way.
- Work on delivery and assembly of auxiliary facilities was carried out.
- Preparations for the Spring 2017 maintenance shutdown were performed to ensure smooth execution of the EFRA works planned to be carried out during the shutdown.

Refining strategy for 2017–2022

The refining strategy will focus on building competitiveness with innovative technologies (e.g. EFRA)/maintaining technological advantage. Expected outcomes of innovation:

- The volume of high-margin products is expected to rise (on the back of investments in new technologies, such as construction of a new olefin complex or manufacture of motor gasolines from naphtha),
- New products will be launched on new markets (e.g. high-margin proprietary base oils made from hydrowax),
- Refining efficiency will improve (thanks to the construction of a CHP plant to meet internal needs of the LOTOS Group).

Refining projects – schedule and economics



Efficiency in action > Refining > Safe refining operations at the LOTOS Group

Safe refining operations at the LOTOS Group

The assumption that underlies our approach to safety management and failure prevention at **the refinery is the integrity of means of production and safety**. Our approach is based on the following:

- Process units are built in compliance with Polish and international standards, relying on long-standing experience in operating such facilities,
- The units are operated by trained and experienced staff,
- Maintenance shutdowns are performed in accordance with the law and well-established procedures, including work permits, work procedures, checking the technical condition of equipment, equipment supervision by the Office of Technical Inspection (UDT) and the Company Technical Inspection, engaging specialised companies to perform overhauls, etc.

In 2016, we focused on ensuring **safety of work to be performed as part of the refinery maintenance shutdown scheduled for 2017**. The preparations included:

- Defining the scope of maintenance work to be performed and securing resources necessary for its proper performance, based on the requirements of Polish law (UDT) and the operational requirements (efficiency of technological processes), review of the technical condition of the equipment and its overhaul history, and the experience gained over many years of operation of the equipment,
- Purchase of spare parts and materials from proven suppliers,
- Engaging contractors specialising in overhauls of petrochemical units and energy generation facilities.

RBI and reliable production units

For a few years now we have been the first in Poland to implement the RBI (Risk Based Inspection) methodology, i.e. a system for comprehensive **management of risk related to the operation of pressure equipment**, which allows us to predict potential equipment failures due to the greatest exposure to damage. Following full implementation of the RBI system, the operation of the refinery units will be more reliable, and the period of uninterrupted operation of the units between maintenance shutdowns should extend **from four to five years**.

In 2016, we analysed risks for **12 key units which**, if stopped, could have extremely adverse consequences for the operation of the refinery as a whole.

In case of failure – training for the manufacturing staff

- In 2016, we completed **69 training exercises** focusing on correct response to industrial failures. They were attended by employees that operate production units on all shifts, and office staff – a total of over 1,000 people. These were practical drills to deal with emergencies that may occur at the production units.

- In September 2016, our employees underwent training under an external rescue operation plan at units 930 and 150, where **leakage of hydrogen sulphide was simulated**. The training covered:
- Identification of sources of danger,
- Notification of the event to rescue services and the dispatcher,
- Evacuation of personnel from the unit to the meeting point,
- Identification of victims (if any),
- Closing and restricting access to roads around the unit,
- Attempts by control room operators, chemical emergency services and the unit crew to bring the situation under control.

The training session was attended, in addition to the technical and security personnel of Grupa LOTOS, LOTOS Straż, and LOTOS Ochrona, by officers of the National Fire Service, Provincial Emergency Management Centre, and Provincial Inspectorate for Environmental Protection. The purpose of the exercise was to **test cooperation of all the services involved in the containment effort**.

Process safety audit at the refinery

To ensure the best safety management standards, an external process safety audit was conducted at the refinery in 2016. The audit was performed by a company with extensive experience in the implementation and assessment of process safety management systems at refineries around the world.

Among the evaluated areas were: integrity of resources and reliability, change management, measurements and indicators, auditing, that is checking the skills of the management, and continuous improvement.

In addition to analysing documents, that is procedures and instructions, the auditors checked individual cases of production incidents, changes in engineering and technological solutions, results of audits and reviews, as well as data on plant engineering and overhauls.

Efficiency in action > Refining > We reduce energy consumption

We reduce energy consumption

[G4-EN1] [OG1] [OG8]

The LOTOS Group has in place a *List of Environmental and Energy Efficiency Objectives*, which includes the following three objectives:

1. Improved energy efficiency of the inter-plant pipeline steam heating system,
2. Reduced consumption of primary energy at the refinery,
3. Improved energy efficiency of the inter-unit connections system.

In our business, cost of energy represents the largest item of operating expenses, therefore we attach particular importance to energy consumption by:

- Ensuring the rational use of energy,
- Maintaining equipment in good technical condition,
- Implementing effective investment projects.

The effectiveness of such an approach is confirmed by the fact that our refinery has for many years ranked among the most energy efficient refineries in Europe.

We operate on the basis of the **Energy Management System (EnMS)**, whose primary purpose is to optimise energy consumption. The energy efficiency of the units and the intermediate processes they perform are monitored on an ongoing basis. The Energy Efficiency Team analyses individual areas and participates in activities aimed at reducing energy consumption.

The LOTOS Group undergoes an **energy audit** to identify potential for efficiencies and areas where undertaking organisational, overhaul or investment initiatives is most likely to bring energy savings and economic benefits.

[G4-EN1]

LOTOS Group's consumption of raw materials in production processes in 2016

REBCO (Russian Export Blend Crude Oil) accounted for **75.18%** of the total crude procurement volume. Crude oil from other sources, including approximately 220,000 tonnes supplied by the LOTOS Petrobaltic Group, accounted for the balance of the crude feed. The mix of crudes resulted from the production optimisation process whose objective was to take advantage of opportunities for increasing the refinery's processing margins.

Crude oil	Volume (t)	Share
REBCO	7,808,862	75.18%
ROZEWIE	107,253	1.03%
B8	141,922	1.37%
LITHUANIAN	40,873	0.39%

Crude oil	Volume (t)	Share
PGNiG	268,787	2.59%
Other	2,019,585	19.44%
TOTAL	10,387,363	100.00%

Other feedstocks used in refining operations	Volume (t)	Share
Demineralised water	322,295	33.32%
FAME (fatty acid methyl ester)	36,974	3.82%
diesel oils	118,046	12.20%
ETBE (ethyl tertiary-butyl ether)	12,983	1.34%
ethanol	49,318	5.10%
MTBE (methyl tertiary-butyl ether)	24,857	2.57%
natural gas	380,561	39.34%
additives	2,527	0.26%
other	19,693	2.04%
TOTAL	967,254	100.00%

Refinery's own consumption	Volume,(t)	Share
fuel gas	311,13	33.31%
residual gas	479,815	51.37%
fuel oil	32,951	3.53%
other	110,151	11.79%
TOTAL	934,047	100.00%

Final products	Volume (t)	Share
gasolines (with reformates)	1,550,430	14.92%
naphtha	520,762	5.01%
xylenes	71,129	0.68%
diesel oil	4,509,280	43.40%
gasoil	262,059	2.52%
fuel oil	1,515,381	14.58%

Final products	Volume (t)	Share
MGO bunker fuel	72,074	0.69%
JET aviation fuel	637,229	6.13%
bitumen components	594,091	5.72%
LPG (Liquefied Petroleum Gas)	186,214	1.79%
base oils	267,605	2.58%
slack wax	49,804	0.48%
plasticisers	36,452	0.35%
sulphur	98,132	0.94%
other, including: 2,509 tonnes of fuel gas sold to LOTOS Asfalt	19,812	0.19%
TOTAL	10,390,454	100.00%

[OG8]

Benzene, sulphur and lead content in Grupa LOTOS fuels:

Substance	Unit	Requirement	2015 - volume	2015 - volume (average)	2016 - volume	2016 - volume (average)
benzene (in gasolines)	% V/V	max. 1.00	0.4 - 0.9	0,7	0.25÷0.94	0,73
sulphur (in gasolines)	mg/kg	max. 10.0	0.3 - 10.0	2,8	0.1÷8.8	2,3
sulphur (in diesel oil)	mg/kg	max. 10.0	2.0 - 9.6	6,7	2.8÷9.9	6,5
lead	mg/kg	max. 5	<2.5	<2.5	<2.5	<2.5

Marketing – sales and distribution

- In 2016, the LOTOS Group improved its operating profit again, and reported consolidated revenue of **PLN 20,931m**.
- In 2016, LOTOS Kolej increased its share in the Polish rail freight market **from 9.91% to 10.20%** and retained the **second position among rail cargo carriers**.
- LOTOS-Air BP began to sell aviation fuel to **Emirates Airline and Air China**, and **thus expanded the pool of its global customers**.
- Since its inception in 2013, LOTOS Oil has established its presence **on 57 foreign markets around the world**.
- In 2016, LOTOS service stations' retail sales hit a record-high. Adjusted EBITDA in 2016 amounted to **PLN 156m**.
- Diesel oil (43.4%), gasolines (14.1%), and heavy fuel oil (13.6%) were the largest contributors to the LOTOS Group sales in 2016.
- In 2016, the LOTOS Group's share in the domestic fuel market was **29.5%**.

2016 at the companies – activities and sales performance

The LOTOS Group's marketing activities in 2016 were carried out by Grupa LOTOS and its subsidiaries: LOTOS Paliwa, LOTOS Oil, LOTOS Asfalt, LOTOS Kolej, and LOTOS-Air BP Polska.

Grupa LOTOS marketed its products in Poland (sales to foreign companies operating in the country) and on foreign markets (exports by sea and by land), while its subsidiaries targeted their sales at individual sectors, i.e. fuels, lubricants, and bitumens.

Areas of specialisation of the subsidiaries engaged in trading and sale of raw materials, products and services of the LOTOS Group:

- LOTOS Oil – manufacturing and sale of lubricating oils and lubricants, and sale of base oils,
- LOTOS Kolej – railway transport,
- LOTOS Asfalt – manufacturing and sale of bitumens,
- LOTOS Paliwa – wholesale and retail sale of fuels and light fuel oil, management of the LOTOS service station chain.

Selected activities and performance of the companies in 2016

LOTOS Kolej

- In Poznań, the company opened its sixth Transport Division, which is used to develop its services in Germany. In 2016, using the services of German train drivers, it transported **881,000 tonnes of products** and intends to increase this volume to 1.1m tonnes in 2017 and 2m tonnes in 2019.
- LOTOS Kolej **started to transport grains and fodder** after it had been certified for compliance with the **GMP+ B4 standard**. The services are provided using LOTOS Kolej's own new rail cars.
- In 2016, the company increased its share in the Polish rail freight market from **9.91% to 10.20%** and retained the **second position (after PKP) among rail cargo carriers**. For many years it has been the **market leader** in transport of **dangerous goods** – in 2016 the volume of dangerous goods it carried rose 24% (from 5.59m tonnes to 6.94m tonnes).

LOTOS-Air BP Polska

- The company began to sell aviation fuel to **Emirates Airline and Air China**, thus **enlarging its pool of global customers**.
- LOTOS-Air BP Polska **increased its fleet of road tankers to 16** and now boasts the newest and the best fleet among businesses operating in Poland's aviation fuel market.
- The Olsztyn-Mazury Airport in Szymany is the **fifth airport where the company sells aviation fuel 'at the wing tip'**. Altogether, LOTOS-Air BP Polska supplies **350,000 litres of fuel on average at five Polish airports every day**.
- In 2016, the company delivered record-high financial results, exceeding by several times the results it posted when it was established in 2014.

LOTOS Asfalt

- In 2016, LOTOS Asfalt continued its activities under the EFRA Project, as part of which it was responsible for **covering the surface of roads with fullSMA bitumen**.
- In 2016, 47 employees, i.e. more than **20% of the company staff**, took part in a competition for innovative ideas.

LOTOS Serwis

- In 2016, LOTOS Serwis provided maintenance, repair and other services for the production facilities of the LOTOS Group and worked on the process modules of the **Petrobaltic rig**.

- In 2016, the company's Integrated Management System was **certified by Polskie Centrum Badań i Certyfikacji, a Polish certification body**.
- In H2 2016, the company was extensively involved in technical and organisational work as part of the preparation for the **SPRING 2017** maintenance shutdown.

LOTOS oil

- LOTOS Oil developed a **new model of operation on the Polish market**, based on communicating the quality and cutting-edge properties of its lubricants. On the international arena, the company started to work the Japanese brand ISUZU.
- Being present on **57 markets**, LOTOS Oil was named 'Ambassador of the Polish Economy' and 'Polish Business – International Champion' in competitions held under the patronage of the Ministry of Foreign Affairs in 2016.

LOTOS Petrobaltic

- The company continued work on full **development of the B8 field**, e.g. it worked on the construction of a gas pipeline to Energobaltic and upgrade of the Petrobaltic rig.
- **To renew its fleet**, in December 2016 LOTOS Petrobaltic acquired a new platform supply vessel (PSV) Sylur, which is ultimately intended to operate as a multi-task vessel.
- Preparations for development of the **B4 and B6** fields.
- **Strengthening its position on the Norwegian Continental Shelf**, where the LOTOS Group acquired interests in 5 licenses.

LOTOS Petrobaltic Group's production and sales of crude oil and gas in 2016

Sales	Country	Volume ('000 boe)
Total crude oil and natural gas	Poland	1 840,00
	Norway	6 750,3
	Lithuania	365,6

Production ⁽¹⁾	Country	Volume ('000 boe/d)
Total crude oil and natural gas	Poland	5,5
	Norway	20
	Lithuania	1,1

⁽¹⁾ Dzienna produkcja w boe/d stanowi sumę wolumenu wydobycia węglowodorów w 2016 r. podzieloną przez liczbę dni w roku.

Diesel oil, gasoline, aviation fuel – what are our best selling products?

The increase in our domestic sales was driven mainly by **improved sales of diesel oil and gasolines** (partly an effect of fuel market legislation enacted by the Polish government in August 2016) – the key petroleum products marketed through the wholesale and retail channels, which are more profitable than exports. The increase in **sales of aviation fuel** followed from higher sales in the wholesale and 'at the wing tip' channels, with the contract for supply of specialist F-34 fuel for the military being an additional source of growth.

LOTOS products with the highest share in sales in 2016

Like in the previous years, diesel oil **had the largest share in the total sales volume**. In 2016, the LOTOS Group sold 4,797 thousand tonnes of diesel oil, which accounted for **43.4%** of total sales.

Gasolines represented **14.1% of total sales**. The volume of gasolines sold in 2016 was 1,557 thousand tonnes, having grown by 0.6% on 2015.

Heavy fuel oil accounted for **13.6% of sales** in 2016. The LOTOS Group sold 1,477 thousand tonnes of the product in 2016, 2.7% up on 2015.

In 2016, the Downstream segment sold 7,026 thousand tonnes of products in Poland (2015: 6,446 thousand tonnes; 2014: 6,282 thousand tonnes) and exported 3,993 thousand tonnes (2015: 4,471 thousand tonnes; 2014: 3,824 thousand tonnes).

The LOTOS Group's sales by product category ('000 tonnes)

	2016		2015		2016/2015 change
	'000 tonnes	% share	'000 tonnes	% share	%
Gasolines	1,557	14.10%	1,547	14.20%	0.60%
Naphtha	521	4.70%	508	4.60%	2.60%
Reformate	45	0.40%	13	0.10%	246.40%
Diesel oils	4,797	43.50%	4 853	44.40%	-1.20%
Bunker fuel	65	0.60%	66	0.60%	-0.,30%
Light fuel oil	268	2.40%	251	2.30%	6.70%
Heavy products ⁽¹⁾	2,118	19.20%	2,099	19.20%	0.90%
JET A-1 fuel	656	6.00%	556	5.10%	18.00%
Lubricants	60	0.50%	60	0.60%	0.10%
Base oils	214	1.90%	202	1.80%	6.30%
LPG	247	2.20%	238	2.20%	4.00%
Crude oil (commodity)	195	1.80%	243	2.20%	-19.80%
Other	276	2.50%	290	2.70%	9.70%
Total petroleum products, merchandise and materials of the Downstream segment	11,018	100.0%	10,917	100.0%	1.30%
Natural gas (toe)	675	6.20%	223	2.00%	202.90%
Crude oil (upstream)	151	1.40%	82	0.80%	84.30%
NGC ⁽²⁾	43	0.40%	8	0.10%	-

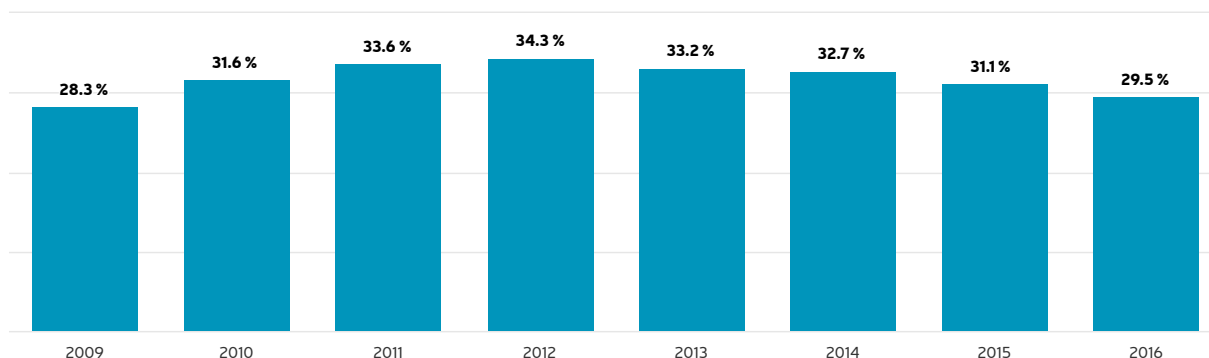
⁽¹⁾ heavy fuel oil and bitumen

⁽²⁾ natural gas condensate

How we sell our fuels

The LOTOS Group offers fuels on the domestic retail market exclusively through **LOTOS Paliwa**. On the wholesale market, the LOTOS Group operates both through Grupa LOTOS (sales of fuels to international corporations and key customers, e.g. under contracts with the Material Reserves Agency and the Military Property Agency) and LOTOS Paliwa (transactions with wholesale customers and independent operators). In 2016, our share in the domestic fuel market was **29.5%**.

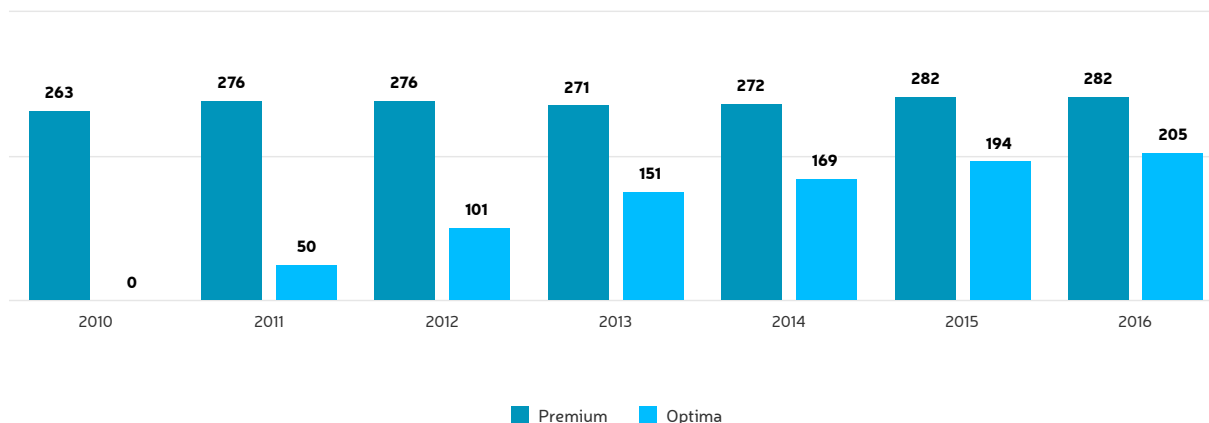
The LOTOS Group's share in the domestic fuel market



11 new service stations – record-high retail fuel sales

In 2016, we posted record-high retail fuel sales. At the end of 2016, the LOTOS service station chain comprised 487 stations, including 11 new ones. Optimisation efforts and the government's Fuels Package helped improve the chain's financial performance. Adjusted EBITDA in 2016 amounted to **PLN 156m**, compared with PLN 112m in 2015 and PLN 95m in 2014.

As at December 31st 2016, 487 stations operated under the Lotos and Lotos Optima brands.



Facilities for customers



- The LOTOS service station chain's performance was supported by our successful efforts to extend the value chain and expand the sales model. Non-fuel products and services generate increasingly more revenue for the chain. Their development was the Marketing segment's key expenditure item in 2016, and was pursued with the objective of ensuring comfort for motorists by:
 - Developing food services, the second largest (after sales of fuel) contributor to the 2016 profit. We have entered into long-term cooperation with the Subway restaurant chain,
 - Introducing other services, such as cashback, automobile services, trailer rental, manual car wash facilities, mobile payments,
 - Opening facilities which offer alternative fuels (electric car charging points in the Gdańsk-Sopot-Gdynia agglomeration).

- The sales efforts were supported by marketing activities – standardisation of the service stations' visual identification and offering customer-friendly solutions: dedicated call bells for disabled persons to call attention of the service station staff, baby changing tables, helmet racks in the toilet rooms for motorcycle riders, and dog watering stations for dog owners. Motorists can also charge their smartphones free of charge.

Management of the service station chain

Grupa LOTOS' chain of service stations is organised into Economy (LOTOS Optima) and Premium (LOTOS) segments. In 2016, we opened 11 new LOTOS sites, including 10 CODO and 1 DOFO station. The chain expansion was based on a plan focusing on key locations which offer the highest potential of winning and retaining fleet customers. The need to eliminate gaps identified in the geographic coverage of the LOTOS service station network was also a priority.


- > To enhance the Company's position in the strategic MSA segment (service stations in Motorway Service Areas), **two MSA stations at the A1 motorway section between Łódź and Gdańsk were opened in Krzyżanów (East/West).**

	LOTOS PREMIUM 282 stations	159 CODO stations 20 MOP stations 103 DOFO stations
	LOTOS Optima 205 stations	121 CODO stations 84 DOFO stations

Expansion of the service stations' offering

Car rental service – partnership with 99rent

In order to enhance the range of services available to customers of its retail chain, LOTOS Paliwa commenced cooperation with 99rent, a car rental company. The objective is to establish a network of points **offering customers a quick and convenient car rental service**. In 2016, it was available at LOTOS stations in eight cities: Bydgoszcz, Częstochowa, Elbląg, Gdańsk, Kraków, Radom, Warsaw, and Wrocław.

Customers can rent cars and small vans. The rental procedure is simple and anyone aged 21 or over who has had a driving licence for at least 2 years can rent a car. The pickup and return processes take only a dozen or so minutes. For information about our service stations with car rental facilities, go to: www.lotos.pl/wypozyczauto .

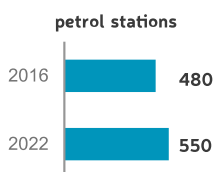
Addition of new sites to the retail sales network

In 2016, the Premium service station chain was further standardised, and new locations were added (both [CODO stations](#) and [DOFO stations](#), the latter under new franchise agreements), including 10 [CODO stations](#) and 1 [DOFO station](#).

Marketing segment strategy for 2017–2022

Retail: optimising the retail network, innovating the product and service portfolio

Further standardisation and organic growth



- **Customer service and sales process** optimisation
- **Revamping the loyalty rewards scheme** with up-to-date technology solutions
- **Introducing a new quality in hospitality** in partnership with market leaders
- **Upgrading on-site facilities:** car wash stations, electric car charging points
- **LOTOS Energy Hub**, alternative fuels

Our ambition:
new quality of LOTOS retail

2017–2022 CAPEX: PLN 0.6bn
- part of PLN 3.3bn CAPEX allocation decision in 2018

Acquisition opportunities

- Seeking out non-organic opportunities to expand the network
- Capturing opportunities to acquire complementary petrol station network

Efficiency in action > Marketing – sales and distribution > Efficient distribution and logistics

Efficient distribution and logistics

[G4-EN25]

Innovative fuel delivery monitoring system



In 2016, LOTOS Paliwa's modern fuel delivery monitoring system was upgraded to include a unique **video surveillance module**.

The FDMS (remote Fuel Delivery Monitoring System) helps enhance goods-in-transit security and reduce the risk of damage or loss of products moved by road, by closely monitoring the vehicle, the cargo and the driver along the transport chain.

LOTOS Paliwa **is working with seven transport companies**, hence the need for coordinated transport operations to deliver fuels to its own and third-party service stations.

The FDMS system comprises several autonomous yet **integrated components**, namely:

- GPS tracker,
- Electronic seal system,
- Compartment stripping control system,
- System preventing mixing of fuels in tanker trucks,
- Video surveillance system.

Some components of the FDMS system are already used by the fuel industry. After the launch of an online platform incorporating data from all systems as well as the **tanker truck video surveillance**, LOTOS Paliwa will boast the most innovative fuel transport monitoring system in Poland.

Environmental efficiency

[G4-EN20] [OG7]

- The LOTOS Group does not emit any ozone-depleting substances (HCFC). HCFC agents used by LOTOS Paliwa have been replaced with HFC agents. In 2016, the service stations' air conditioning systems emitted a total of 150 kg of HFC.

[G4-EN25]

- Total weight of hazardous waste transported by LOTOS Group companies in 2016 was 23,378.5 tonnes. Total weight of hazardous waste treated by the LOTOS Group was 13,954.95 tonnes.
- Percentage of products sold and their packaging materials that is reclaimed, by category (at LOTOS Oil and LOTOS Paliwa):

[G4-EN28]

LOTOS Oil

Name	Lubricants	Hazardous packaging	Packaging	Lubricant preparations
Volume of products and packaging materials reclaimed during the reporting period	17,122.5	3.5	1,667.0	1,513.1
Volume of products sold during the reporting period	34,245.1	17.5	2,732.8	6,304.4
Percentage of products sold and packaging materials that were reclaimed	50%	20%	61%	24%

[G4-EN28]

LOTOS Paliwa

Name	2016
Volume of products and packaging materials reclaimed during the reporting period	110,123.75
Volume of products sold during the reporting period	180,530.7

Name	2016
Percentage of products sold and packaging materials that were reclaimed	61%

Our environmental performance



THE GLOBAL GOALS
For Sustainable Development



[OG1] [G4-EN6] [G4-EN14]

In 2016, we consistently pursued initiatives to bring down energy consumption, as it represents the largest item of the LOTOS Group's operating expenses. Therefore, reducing the amounts of energy consumed by our plants is the key objective of our Energy Management System (EnMS), based on ISO 50001, and our *Energy Policy*.

- **The EnMS System allows us to monitor energy efficiency of the units and the intermediate processes they perform on an ongoing basis. The Energy Efficiency Team analyses their individual areas and engages in activities aimed at reducing energy consumption. Energy consuming machinery is monitored in a comprehensive and regular manner in order to maintain high efficiency of heat transfer in technological processes.**
- **Energy intensity is monitored on an ongoing basis during the respective industrial processes to ensure the highest possible adequacy of operational efficiency assessment in our crude oil processing activities. Our organisation undergoes an energy audit to identify potential for efficiencies and areas where undertaking organisational, overhaul or investment initiatives is most likely to bring energy savings and economic benefits.**
- > **The effectiveness of our approach to energy consumption management is confirmed by the fact that our refinery is ranked among Europe's most energy efficient refineries.**

To sum up, our energy efficiency efforts and the procedures we have implemented in recent years and are continuously improving involve:

- Rational use of energy,
- Optimum use of technological processes,
- Maintaining proper technical condition of the energy-consuming infrastructure,

- Energy efficiency improvement projects,
- Procurement of services and assets taking into account their energy intensity's effect on long-term costs of their use.

[G4-EN3]
Energy consumption within the organisation

		Amount (GJ)
Total consumption of energy from non-renewable sources (own or purchased)	coal	274,453
	natural gas	7,909,737
	Diesel oil	623,026
	fuel gas	12,802,988
	residual, special, reservoir gas	3,825,240
	heavy fuel oil	0
	light fuel oil	1,364,562
	marine oil	0
	LPG (if used for heat generation)	0
Total	Total consumption	26,800,006
Total consumption of energy from renewable sources (own or purchased)		0
Total	Total consumption	0
Total consumption of purchased energy	electricity	6,047,734
	heat (including steam and cooling)	127,187
Total	Total consumption	6,174,921
Total sales of self-produced energy	Total electricity sales	171,059
	Total heat sales (net)	299,037
	Total sales of cooling energy	0
	Total sales of steam	208,953
Total	Sales	679,049
Total energy consumption within the organisation		32,295,878

Our economic use of **water resources** is based on relevant water use and integrated permits. Analyses of the environmental impact of our water abstraction activities confirm that they have no material effect on any protected sites or areas of great environmental value, and that the amount of water abstracted is substantially below permitted volumes.

[G4-EN8]

Water withdrawal by source

Total volume of water withdrawn by the Company, by source	[cubic metres]
Water from rivers	3,983,623.0
Water from lakes	0.0
Seawater	557,229.6
Water from wetlands	0.0
Ground water	370,705.0
Rainwater collected directly and stored by the organisation	0.0
Municipal water	314,354.8
Waste water from another organisation	0.0
TOTAL	5,225,912.4

Processes consuming large quantities of water:

- CHP plant: utilities production (Grupa LOTOS) – 2,984,550.0 cubic metres
- Refinery: circulatory cooling water (Grupa LOTOS) – 1,409,420.0 cubic metres
- Injection of seawater into the B3+B8 reservoir (LOTOS Petrobaltic) – 557,229.6 cubic metres
- Production of decarbonized water (LOTOS Infrastruktura) – 270,659.0 cubic metres
- CHP plant, heating and process steam generation (RCEkoenergia) – 135,766.0 cubic metres

[G4-EN10]

Percentage and total volume of water recycled and reused

Volume (cubic metres)	TOTAL
Total volume of water withdrawn by the organisation	8,989,958.4
Volume of water recycled or reused	4,334,196.6
Share of water recycled or reused in the total volume of water withdrawn by the organisation	48.2%

Our operations do not have a negative **impact on biodiversity** at the refinery's site or in its immediate vicinity, as confirmed by a wildlife survey. The LOTOS Group investigated its impact on biodiversity over the past few years as part of its CSR strategy effective until 2015.

In 2014 and 2015, we conducted a comprehensive wildlife survey on the grounds of our refinery and in surrounding areas and we identified the most valuable nature conservation areas. The survey report will be a starting point for monitoring activities planned to be taken after completion of the EFRA Project (2018).

In 2016, there was no need for work on biodiversity issues in or around the refinery.

[OG4]

Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored

Total number of significant operating sites	Number of significant operating sites where biodiversity risk has been assessed	Percentage of significant operating sites where biodiversity risk has been assessed
1	1	100%

Total number of significant operating sites exposed to biodiversity risk	Percentage of significant operating sites exposed to biodiversity risk	Number of significant operating sites exposed to biodiversity risk in which Biodiversity Action Plans have been implemented and monitored
1	1	0%

[OG6]

Volume of flared and vented hydrocarbons

Location	Volume of flare gas ['000 cubic metres]	Volume of vented gas ['000 cubic metres]
Poland	7,238.81	0
International waters, Polish Exclusive Economic Zone (LOTOS Petrobaltic rig and BB rig)	15,773.28	0
TOTAL	23,012.09	0

[G4-EN11]

Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.

Grupa LOTOS' key operational site (refinery in Gdańsk) is not in or adjacent to protected areas. The closest protected area, the 'Ptasi Raj' reserve (Natura 2000 site), is located more than 4 km to the north-east from the refinery.

In 2016, LOTOS Paliwa added 11 service stations to its chain. Analyses carried out during the construction of new stations and inclusion of existing sites showed no potential impact on areas of great natural value or areas covered by the national biodiversity conservation strategy.

Energobaltic's CHP plant in Władysławowo, at the base of the Hel Peninsula, is adjacent to the Coastal Landscape Park located within a Natura 2000 site. The land used by the company is not part of the protected area.

LOTOS Geonafta produces oil and gas from onshore fields at five locations in the Kretinga district in Lithuania. They are located in close proximity to areas of great natural value due to aquatic ecosystems (Natura 2000). However, the area where the company carries out its work is 600–700 meters away from the nature sites.

The most critical source of environmental impact caused by our plants, both for the installations' immediate environment and areas located further away, is **gas emissions**. Therefore, we are most concerned to ensure that the processes involving gas emissions are based on Best Available Techniques and best practices reducing the plants' impact in that respect.

Since 2011, we have sought to reduce our Gdańsk refinery's carbon (CO₂) emissions intensity ratio, expressed in kg CO₂/CWT, every year. The target for 2016 was also successfully met.

29.1 kg CO₂/CWT is the current level of the Gdańsk refinery's average emissions intensity ratio after it was reduced from 29.8 kg CO₂/CWT in 2015.

The reduction was partly achieved by switching over to natural gas as fuel for the CHP plant and feedstock in hydrogen production, while reducing the volumes of heavy fuel oil used to meet the refinery's energy needs, which was made possible by the gas connection with the refinery constructed in 2012.

[G4-EN15]

Direct greenhouse gas emissions

Direct greenhouse gas (GHG) emissions	[MgCO₂e]
Emissions associated with electricity production	28,083
Emissions associated with heat production	1,326,738
Emissions from cooling and steam generation systems	47,322
Emissions from physical and chemical processing	628,331
Hydrofluorocarbons (HFC) emissions	0
Emissions related to transport of materials, products and waste	175
Total direct emissions	2,030,649

Operations/processes of particular relevance (where they represent a material proportion of the organisation's emissions profile)	GHG emissions [tonnes of CO ₂ e] 2016
Heat generation at CHP plant	282,019
Refining production	1,617,919
Emissions from extraction processes – burning of fossil fuels to meet the rigs' energy needs and burning of waste gas in the burner head	78,437

[G4-EN16]

Indirect greenhouse gas emissions

Indirect greenhouse gas (GHG) emissions	[tonnes of CO ₂ e]
Emissions from electricity purchased for the organisation's needs	545,560.3
Emissions from heat purchased for the organisation's needs	1,115.0
Emissions from steam and cooling energy purchased for the organisation's needs	0.0
Total indirect emissions	546,675.3

[G4-EN18]

Greenhouse gas (GHG) emissions intensity

CO ₂ emission intensity	Grupa LOTOS	Energobaltic	Asphalt	RCEkoenergia
CO ₂ emissions volume	1,899,938 MgCO ₂	8,055 MgCO ₂	15,378 MgCO ₂	29,565 MgCO ₂
Production value	65,289 Mg	145,190 GJ	673,593 Mg	297,399.3 GJ
CO ₂ emissions intensity ratio (tonnes of CO ₂ /mboe or other production factor)	29.1 kgCO ₂ /CWT	0.06 MgCO ₂ /GJ	0.02 MgCO ₂ /Mg	0.10 MgCO ₂ /GJ

The volumes of our air emissions did not exceed the permitted levels set out in the integrated permit covering our companies.

[G4-EN21]

NO_x, SO_x, and other significant air emissions

NO _x , SO _x and other significant air emissions	Total [Mg]
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NO_x, SO_x and other significant air emissions	Total [Mg]
NO _x	1281.32
SO _x	1852.049
Persistent organic pollutants (POP)	0
Volatile organic compounds (VOC)	66584.234
Hazardous air pollutants (HAP)	3.3
Particulate matter (PM)	298.633
Other standard categories of air emissions	41244.686

Emission intensity in oil and gas production	Total [Mg/mboe]
NO _x	46.338
SO _x	4.447
Volatile organic compounds (VOC)	388.334
Particulate matter (PM)	4.576

For years, Grupa LOTOS has maintained a high quality of **treated wastewater**. Regular monitoring has confirmed that the wastewater discharged meets the required parameters.

As in previous years, in 2016 we sought to keep the effluent parameters at below 50% of admissible levels, in line with our corporate CSR strategy effective until 2015.

[G4-EN22]

Total water discharge by quality and destination

Wastewater discharge destination	TOTAL
To groundwater	0.0
To surface water (lakes, rivers, etc.)	6,531,834.9
To municipal utilities	220,882.0
Total wastewater volume	6,752,716.9

Wastewater treatment method	TOTAL
By the organisation	6,531,834.9

Wastewater treatment method	TOTAL
By a wastewater treatment plant	220,882.0
Total volume of treated wastewater	6,753,186.9
Other	470.0

We favor the most environmentally-friendly **waste management** methods, such as recycling and recovery, and we take firm steps to curb the use of methods that are harmful to the environment, such as burning without energy recovery, landfilling and other forms of disposal.

Therefore, we put considerable effort into having as much waste as possible collected by external waste management companies for further recovery or recycling. As much as 99.4% of waste we transferred to external companies in 2016 was reused or recycled.

[G4-EN23]

Total weight of waste by type and disposal method

Total weight of hazardous and non-hazardous waste by disposal method	TOTAL [Mg]	
	hazardous waste	non-hazardous waste
Reuse of waste	0.0	67.8
Recycling (including organic recycling, e.g. composting)	51.4	42.8
Recovery (including energy recovery)	8,162.1	7,912.4
Burning (or use as fuel)	1,044.1	20.3
Landfilling	5.7	29.6
Discharge to deep wells	0.0	0.0
On-site storage	2,335.4	18.4
Other	412.3	713.7
TOTAL	12,011.0	8,805.0

In this respect, we follow the provisions of applicable EU and Polish laws and decisions. We strive to ensure that our waste management does not harm the environment.

[G4-EN25]

The total weight of hazardous waste transported by LOTOS Group companies in 2016 was 23,378.5 tonnes, whereas the total weight of hazardous waste treated by the LOTOS Group was 13,954.95 tonnes.

[G4-EN24]

No significant spills were recorded in 2016, but our production facilities are adequately prepared for a spill emergency, with each having relevant spill prevention and response procedures in place. Response operations are handled by dedicated in-house chemical emergency services. Any waste generated from a spill (for instance soil contaminated with petroleum products) is handed over to specialist companies for legal disposal.

We have taken a strategic approach to minimizing our environmental impacts, which is why the LOTOS refinery, our major plant, is now one of the most environmentally friendly refineries in Europe.

When selecting and implementing innovative solutions, we always seek synergies between the needs of the company and benefits to the environment, and especially to the natural world.

[G4-EN29]

No fines or sanctions for non-compliance with environmental laws and regulations were imposed on any LOTOS Group company in 2016.

[G4-EN31]

Total environmental protection expenditures and investments by type

Total environmental protection expenditures and investments	TOTAL
Waste disposal, emissions treatment, and remediation costs (PLN)	63,129,077
Prevention and environmental management costs (PLN)	149,323,135

Companies included in the calculations: Grupa LOTOS, Energobaltic, LOTOS Asphalt, LOTOS Biopaliwa, LOTOS Infrastruktura, LOTOS Kolej, LOTOS Lab, LOTOS Oil, LOTOS Paliwa, LOTOS Petrobaltic, LOTOS Serwis, LOTOS Straż, LOTOS Terminale, RCEkoenergia.

Total environmental protection expenditures and investments	TOTAL
Waste disposal, emissions treatment, and remediation costs (EUR)	222177
Prevention and environmental management costs (EUR)	8901

Company included in the calculations: LOTOS Geonafta

[G4-EN34]

Number of grievances about environmental impacts	Grupa LOTOS, Energobaltic, Geonafta, LOTOS Asphalt, LOTOS Infrastruktura, LOTOS Kolej, LOTOS Oil, LOTOS Paliwa, LOTOS Petrobaltic, LOTOS Terminale, RCEkoenergia
Number of grievances about environmental impacts filed during the reporting period through formal grievance mechanisms	4
Number of grievances filed and addressed	3
Number of grievances filed and resolved	3

Number of grievances about environmental impacts	Grupa LOTOS, Energobaltic, Geonafta, LOTOS Asphalt, LOTOS Infrastruktura, LOTOS Kolej, LOTOS Oil, LOTOS Paliwa, LOTOS Petrobaltic, LOTOS Terminale, RCEkoenergia
Total number of grievances about environmental impacts filed prior to the reporting period and resolved during the reporting period	0

No grievances were received directly by LOTOS Paliwa, but the company had noise levels measured at its two service stations in response to two complaints filed with the local county governors. It was found that permitted noise levels were exceeded, and the company was served a noise abatement notice. Acoustic screens were installed at the two service stations in 2016, and currently proceedings are pending to affirm the company's compliance with the prescribed noise limits.

[OG13]

In 2016, we recorded five Tier 2 process safety events as per API RP 754 definitions. All took place at the refinery, were associated with refining processes and caused no environmental damage. Thanks to the security and protection systems in place and the efficient operation of our rescue services, the incidents had no major impact on the refinery's operation.

In 2016, no API RP 754 Tier 1 process safety events were recorded at the LOTOS Group companies.

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 7.3. Environmental protection



LOTOS Group
Integrated Annual Report 2016

06

TAKING RESPONSIBILITY FOR INTERNAL AND EXTERNAL STAKEHOLDERS

Taking responsibility for internal and external stakeholders > Who do we engage with and why?

Who do we engage with and why?

[G4-24] [G4-25] [G4-26]

Our key stakeholders are identified based on:

- Their influence on the organisation,
- The organisation's influence on the stakeholders,
- Our key business regions: The Pomorskie Province (the Gdansk region) in the north of Poland, and the Czechowice-Dziedzice and Jasło regions in the south of Poland.

Our stakeholders



Our stakeholders recognise our efforts in many fields, as demonstrated by the numerous **awards** we were granted in 2016 and in the preceding years.

We are engaged in an active dialogue with our social partners and market players. The communication channels and frequency of the interaction vary depending on the stakeholder group and are designed to ensure the relationship benefits to both parties. Our key activities in this area are as follows:

-
- regular surveys to gauge the satisfaction level of our customers, contractors and suppliers,
 - regular exchange of information with capital market players through our Investor Relations tab and road shows,
 - interaction with regulatory, inspection/audit and monitoring bodies on an as needed basis,
 - dialogue with employees during day-to-day work and through trade unions, and regular job satisfaction surveys.

Taking responsibility for internal and external stakeholders > Safety First

Safety First

- The implemented safety measures and procedures resulted in no accidents at work reported on the EFRA Project in 2016.
- In 2016, we started to implement a uniform occupational safety system across the LOTOS Group under the Partner Programme.

No accidents under EFRA Project

One of our primary operational goals in 2016 was to build a culture of safety on the EFRA Project site at the refinery. Around 600 people worked on the site at the end of December 2016, and the number will ultimately double.

We were able to achieve progress on the EFRA Project **with no days lost due to work accidents** thanks to a comprehensive set of safety measures listed below.

- We introduced uniform **HSE rules** applying to all contractors working on the EFRA Project site. The rules were written down and made available to the contractors at kontrahenci.lotos.pl.
- We tested and implemented the **HSE Website**, an innovative IT tool for managing safety issues under the EFRA Project.
- We regularly issue an **HSE newsletter** to communicate safety updates to the personnel working on the Project site.
- **We provide opinions on documentation of the contractors** responsible for unit design and engage in dialogue with them; we familiarise them with the LOTOS Group's workplace and fire safety standards; we provide opinions on the safety and health protection (BIOZ) plans and safe work instructions; we update internal procedures.
- We put in place a programme **of weekly HSE inspections** of the construction site with the participation on the EFRA Project director.
 - For the purposes of the EFRA Project we procured a dedicated ambulance with **resuscitation equipment** (in addition to the physician-staffed ambulance that is always on a standby basis at the refinery). The ambulance is staffed with two paramedics and is available every day of the week except Sunday.
- We implemented the 'Working Safely' **incentive programme** to recognise those who have become EFRA Project safety ambassadors because of their outstanding on-the-job safety performance.
- We enhanced supervision by the HSE team of contractors working on the construction site, with at least **one HSE specialist** covering **every 80 EFRA Project contractor employees**.
- The contractors are required to hold weekly meetings for their personnel dedicated solely to HSE matters.

- We ran a **series of training and communication events** that contributed to the building of a safety culture on the Project site. These included:
 - **“Demo Bus” - mobile Training Unit at the refinery**
To maximise the number of EFRA Project personnel participating in safety education events, we staged the events on the construction site using a mobile training unit. The key topic was eye protection as it raised the most concerns among personnel. During the meetings, experts talked from the deck of the mobile unit about the different types of safety glasses available in the market and shared tips on how to find the type that suits individual needs and helped to decode the signs and symbols on the glasses. The initiative included a contest to find the best slogan promoting eye protection among contractors.
 - **Global Day for Health and Safety**
We celebrated the event with two days of training, lectures and presentations for EFRA Project personnel, both from the LOTOS Group and persons hired by the subcontractors. The programme included an internal training session for HSE management personnel including the members of the EFRA Project Execution and Engineering Support Office teams. The training covered HSE and responsibility during the investment process as well as key safety requirements for the EFRA Project. It also included workshops, simulations and hands-on presentations for construction workers, particularly those most exposed to a fall hazard.
 - **7th Workplace Health and Safety Days**, organised to educate staff on HSE matters. The event took place at the refinery and in other locations, and it included the 'All Rounder' HSE knowledge competition for two-member teams of LOTOS Group employees.

HSE system harmonisation – the Partner Programme

In 2016, we started to introduce a uniform occupational safety system across the LOTOS Group under what we call the **Partner Programme**.

Its purpose is to:

- provide advice, exchange knowledge, experience and best practices between the representatives of the different companies,
- work out uniform interpretations of law and implement Group-wide uniform safety system initiatives,
- create a base facilitating the development of a uniform system through regular on-site visits serving to get an insight into the nature of work and hazards at the facilities of individual LOTOS Group companies,
- jointly search for solutions to safety issues,
- build a culture of safety at the organisation.

During meetings held under the Partner Programme, company representatives presented updates on actions taken, as well as on current HSE issues and challenges. The starting point for any discussion concerning the organizational culture and the culture of safety were their deep roots in the LOTOS Group's [Code of Ethics](#) and our key values of respect, transparency, cooperation and professionalism.

	2016		2015	
	Women	Men	Women	Men
Total workplace accidents	1	6	2	11
Total fatalities	0	0	0	0

	2016		2015	
	Women	Men	Women	Men
Severe injuries	0	0	0	0
Minor injuries	1	6	2	11
Total injured in accidents		7		13

Number of accidents by activity (e.g. road transport, air transport, construction activities, etc.)	2016	2015
	Number of accidents	Number of accidents
Moving on foot	2	5
Use of machinery and equipment	3	5
Driving, using means of transport	1	3
Transport	1	0

[G4-LA6]

Our regular efforts promoting HSE education are bringing tangible results – we recorded lower number of accidents at work, lower accident rate and absenteeism caused by accidents in 2016.

Incidence rate (IR, calculated as total number of injured during accident /headcount x 1,000)

2016			
Women	Men	Total	
2.30	6.40	5.10	
2015			
Women	Men	Total	
4.71	11.87	9.62	

Total number of working days lost due to workplace accidents (LDR, calculated as the ratio of total days lost to scheduled working hours in the reporting period*200,000)

2016			
Women	Men	Total	
25.63	15.84	19.06	

2016		
2015		
Women	Men	Total
31.48	64.61	53.78

Accident severity rate (days lost/number of accidents)

2016		
Women	Men	Total
112.00	23.5	36.14
2015		
Women	Men	Total
67.00	51.45	53.85

The LOTOS Group – An Employer of Choice



THE GLOBAL GOALS
For Sustainable Development



- In 2016, 88.32% of all the employees received a positive periodic assessment.
- In 2016 average training hours per employee totalled 23.5, i.e. two hours more compared to 2015.
- 1,250 employees of the LOTOS Group attended training courses organized by the LOTOS Academy.
- Given the ongoing EFRA Project, in 2016 a record-high number of training hours was recorded to the personnel in the refining area. 97 plant operators received training as part of four 12-day sessions, concluded with a written examination and the award of course completion certificates.

We aim to strengthen the LOTOS Group's market position as an **employer of choice**. It is one of the key objectives of the LOTOS Group strategy for 2017–2022, and talent development is perceived as a way to build competitive advantage.

To this end, we pay special attention to **professionally designed employee assessment model to provide up-to-date and personalised feedback**. In 2016, we consistently followed and improved our periodic employee assessment system.

In the next five years, we will also seek to ensure an **ongoing information exchange within the organisation to take advantage of the internal diversity of our teams**. In 2016, this issue was addressed by holding training sessions focused on appreciation of diversity in teams as well as inter-company initiatives and meetings where staff shared their experience regarding, for instance, the safety system.

Facts and Figures About LOTOS Group Employment



THE GLOBAL GOALS
 For Sustainable Development



[\[G4-9\]](#) [\[G4-10\]](#) [\[G4-11\]](#) [\[G4-LA1\]](#) [\[G4-LA4\]](#) [\[G4-EC5\]](#)

The LOTOS Group has in place a collective bargaining labour agreement which lays down the rules governing employment relationships between the employer and the employees. In 2016, the collective bargaining labour agreement covered 4,670 employees (or 96% of the total workforce, which is 4,888).

[\[G4-10\]](#)

LOTOS Group employees in 2016

	Number of employees	
	2015	2016
Total number of employees (FTEs) by gender:		
Women	1 116	1 116
Men	3 707	3 740
Total	4 823	4 856

	Number of employees	
	2015	2016
Total number of employees (actual headcount) by gender:		
Women	1 120	1 119
Men	3 730	3 769
Total	4 850	4 888

Number of employees (actual headcount) by employment type:	Number of employees			Number of employees		
	2015		Total	2016		Total
	Women	Men		Women	Men	
Full-time	1 107	3 691	4 798	1 108	3 720	4 828
Part-time	13	39	52	11	49	60
Total	1 120	3 730		1 119	3 769	

Number of employees and associates (actual headcount) by employment contract:	Number of employees		Total	Number of employees		Total
	2015			2016		
	Women	Men		Women	Men	
Fixed-term contracts	205	574	779	229	606	835
Contracts for indefinite term	915	3 156	4 071	890	3 163	4 053
Total	1 120	3 730		1 119	3 769	

Number of employees and associates (actual headcount):	Number of employees		Total
	2016		
	Women	Men	
Under civil-law contracts of mandate (umowa zlecenie)	28	41	69
Under civil-law contracts for specific task (umowa o dzieło)	1	1	2
Under internship contracts	0	0	0
Self-employed	0	0	0
Supervised employees and/or seasonal workers	1	2	3
Total	30	44	

[G4-LA1]

New hires and departures in 2016 – employee turnover rate

New hires (actual headcount) by gender:	Number of employees	Number of new hires	New hires as percentage of total number of employees, by gender	Gender composition of new hires
	2016	2016	2016	2016
Women	1 119	107	9.56%	24.94%
Men	3 769	322	8.54%	75.06%
Total	4 888	429	8.78%	

New hires (actual headcount) by age:	Number of employees	New hires in age group	New hires as percentage of total headcount, by age	Age composition of new hires
	2016	2016	2016	2016
<30	584	162	27.74%	37.76%
30-50	3 054	217	7.11%	50.58%
>50	1 250	50	4.00%	11.66%

Departures (actual headcount) by age:	Number of employees	Number of departures in a given age group	Departures as percentage of total headcount, by age	Age composition of departures
	2016	2016	2016	2016
<30	584	39	6.68%	11.05%
30-50	3 054	165	5.40%	46.74%
>50	1 250	149	11.92%	42.21%

Departures (actual headcount) by gender:	Number of employees	Number of departures	Departures as percentage of total headcount, by gender	Gender composition of departures
	2016	2016	2016	2016
Women	1 119	97	8.67%	27.48%
Men	3 769	256	6.79%	72.52%
Total	4 888	353	7.22%	

[G4-EC5]

Ratio of standard entry level wage at the LOTOS Group by gender to local minimum wage in the Polish market in 2016

Minimum wage in Poland (gross) in 2016	Average entry level wage	Ratio of standard entry level wage to minimum wage in Poland	Average entry level wage	Ratio of standard entry level wage to minimum wage in Poland
	WOMEN	WOMEN	MEN	MEN
PLN 2,000	PLN 2 000,00	1	PLN 2 000,00	1

More information

[Directors' Report on the operations of Grupa LOTOS S.A. and the LOTOS Group in 2016](#)

Chapter 7.2 Employment at the LOTOS Group

Taking responsibility for internal and external stakeholders > The LOTOS Group – An Employer of Choice >
Career at the LOTOS Group

Career at the LOTOS Group



THE GLOBAL GOALS
For Sustainable Development



[G4-LA9]

At the LOTOS Group, we have always viewed internal recruitment as a priority. This approach allows us to best harness our personnel skills to achieve the organization's objectives, and to offer our personnel the development opportunities within the LOTOS Group structures. Talent development, considered to be of key importance to building competitive advantage, has been included in the set of our strategic objectives for 2017–2022.

In 2016, we launched the *Internal recruitment at the LOTOS Group* tab on the home page of Lotostrada website (designed for the LOTOS Group's personnel), in response to the feedback received from employees, who reported recruitment difficulties caused by problems with finding available job offers.

The *Internal recruitment tab at the LOTOS Group* was developed to:

- emphasise once again the importance we attach to internal recruitment,
- facilitate access to information on new job openings for those interested,
- ensure confidentiality of the recruitment process, from filing the application to acceptance of a candidate by the future superior,
- promote the *Internal Recruitment Standards at the LOTOS Group*, developed in 2016.

Internal Recruitment Standards at the LOTOS Group are a set of key principles applied to the internal recruitment processes. They provide guidance on issues which so far have raised concerns among personnel and their managers, and should be followed by all persons involved in any recruitment process.

Internal Recruitment Standards at the LOTOS Group

1. **We guarantee discretion** at every stage of the recruitment and selection process.
2. In each internal recruitment process we indicate the **recruiter, who can be contacted personally**, by email and by phone.
3. Any employee of the LOTOS Group employed under an employment contract can be an **internal candidate**.

4. **Each recruitment process is announced on the Lotostrada website** in the form of an internal recruitment announcement.
5. Internal applications may only be submitted using the APPLY button in an announcement.
6. We contact each candidate by phone, in order to **find out the reasons behind their application, answer their questions**, and provide information on further steps in the process.
7. Each internal application is handed over to the recruiting manager, whose duty is to evaluate such application.
8. **Each candidate receives feedback**, and the selected candidates are invited to recruitment meetings.
9. A decision on the type and terms and conditions of the employment contract offered to a given employee is made on a case-by-case basis by head of the organisational unit to which such employee is recruited, upon prior consultation with the recruiter, and taking into account the candidate's situation and competences.
10. Internal transfer requires consent from the employee's line manager; the line manager is notified of the employee's participation in the recruitment process and their acceptance for a new position by the candidate and/or the recruiter. **The notification path is always agreed on with the candidate.**
11. Candidates' credentials are checked **only with their knowledge and consent**, through the recruiter.
12. If a candidate from another company is to be recruited, a relevant decision is notified to the HR coordinator, with whom we then agree on further procedure.
13. An employee should be reassigned to the new position within maximum three months.
14. **We launch a recruitment process to replace the departing employee** (starting with internal recruitment), if required.

Another solution recently implemented by the LOTOS Group's HR department is the provision a recruiting manager with all applications submitted by internal candidates, including those who do not meet all formal requirements. This increases their chances of employment in the area where they would like to develop further their careers.

In the event of a potential conflict of interests between the line manager and employee, related to internal promotion, the HR department engages in talks with such line manager.

The LOTOS Group is a member of the [Coalition for Friendly Recruitment](#) , established in 2013.

[G4-LA11]

PEES, or why we assess our employees

PEES, that is Periodic Employee Evaluation System, is an employee assessment model shared across the LOTOS Group.

Facts and Figures about Periodic Employee Evaluation System at the LOTOS Group in 2016

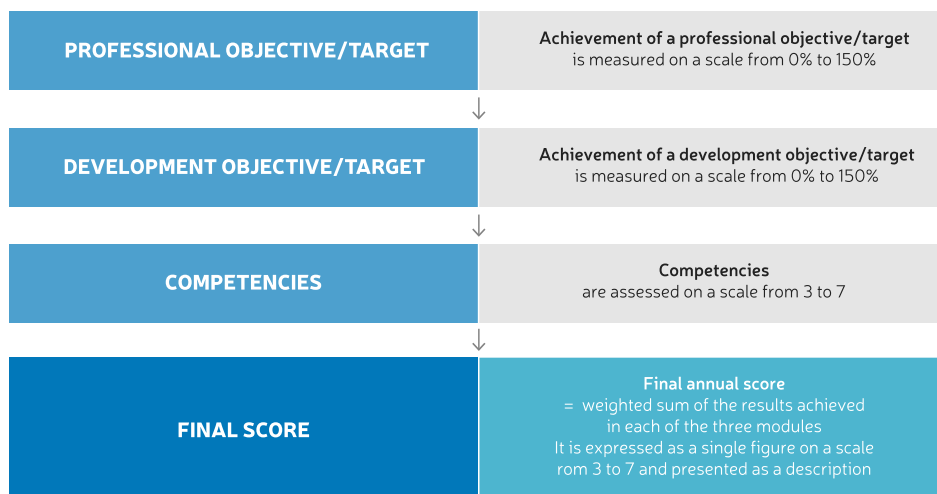
- The professional and development objectives set forth for the LOTOS Group personnel were met with **above the average** results.

- In 2016, PEES reviews at the LOTOS Group covered **97.32%** of eligible personnel , i.e. **88.32%** of the total workforce. In 2015, 97% of eligible employees received a positive periodic evaluation.
- Women and men accounted for, respectively, **21.47%** and **75.86%** of eligible personnel covered by PEES reviews in 2016, representing, respectively, 19.48% and 68.84% of all women and men employed at the LOTOS Group. The lower proportion of women reflects the employment structure at the LOTOS Group: most of our employees are men.

Benefits of using PEES at the LOTOS Group:

- periodic evaluation is an opportunity for the employees and their superiors to discuss their last year's performance , to set professional and development objectives , talk about mutual expectations and needs,
- employees working in similar positions are evaluated in a similar and objective manner, based on known criteria,
- evaluation results are taken into account when making decisions on offering training, studies, or foreign language courses to employees,
- evaluation results are also taken into consideration when making decisions regarding employee promotion, pay rise, division of duties, or recruitment.
- each company reviews the results individually, to quickly obtain such information as names of the best performers, or to identify competencies which are at the highest level of development and those which need to be worked on.

Periodic evaluation formally commences on **1 July and lasts until the end of August**. In the areas which have a more complex organizational structure or which are involved in time-consuming projects, the assessment process may begin earlier. In 2016, we implemented the new PEES at LOTOS Kolej and LOTOS-Air BP, where – due to the specific nature of those companies' business – the 2016 evaluation process started already in June.



To prepare well for the assessment both those who perform the assessment and those who are subject to the assessment can read PEES textbooks and checklists with things to remember when getting ready for the meeting.

Facts and Figures about training and development at the LOTOS Group in 2016

1,250 employees

NUMBER OF EMPLOYEES FROM ACROSS THE LOTOS GROUP WHO WERE TRAINED UNDER THE LOTOS ACADEMY PROGRAMME IN 2016

4,888 headcount

LOTOS GROUP'S TOTAL HEADCOUNT IN 2016, INCLUDING 1,119 WOMEN AND 3,769 MEN

24.5 hours

AVERAGE NUMBER OF TRAINING HOURS PER FEMALE EMPLOYEE AT THE LOTOS GROUP IN 2016

23.1 hours

AVERAGE NUMBER OF TRAINING HOURS PER MALE EMPLOYEE AT THE LOTOS GROUP IN 2016

23.5 hours

AVERAGE NUMBER OF TRAINING HOURS PER EMPLOYEE IN 2016

2 hours

AN INCREASE IN THE NUMBER OF TRAINING HOURS PER EMPLOYEE COMPARED TO 2015

2.5 hours

AN INCREASE IN THE NUMBER OF TRAINING HOURS RECEIVED BY TECHNICAL, ADMINISTRATIVE, OFFICE AND OPERATIONS PERSONNEL COMPARED TO 2015, FROM 21 HOURS PER EMPLOYEE IN 2015 TO 23.5 HOURS PER EMPLOYEE IN 2016

10.7 hours

AN INCREASE IN THE NUMBER OF TRAINING HOURS RECEIVED BY TOP MANAGEMENT PERSONNEL, FROM 25.8 HOURS IN 2015 TO 36.5 HOURS IN 2016

LOTOS Academy

In response to changes within the organization and its business environment, in 2014 we prepared and implemented our proprietary training and development programme called LOTOS Academy, which we continue to develop.

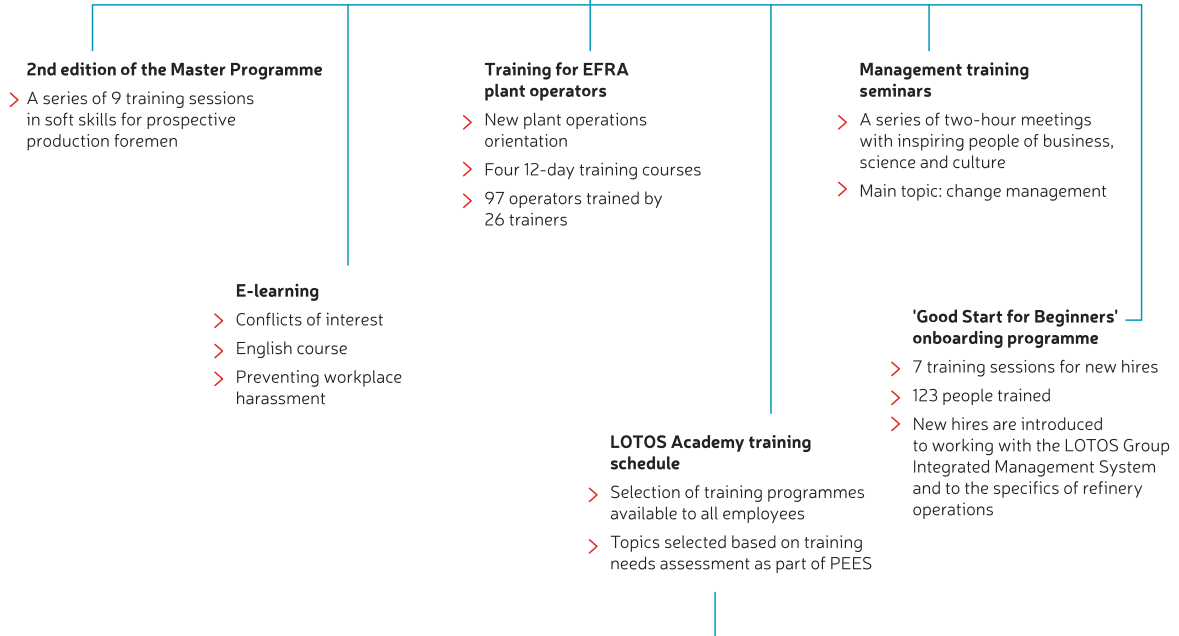
The primary objectives of the programme are to:

- develop talent,
- build strong workplace relationships and embrace employees as our most valuable asset,
- promote a culture of knowledge sharing,
- build the LOTOS GROUP as an organization opened to innovation, efficient and competitive.

At LOTOS Academy we design and implement talent development programmes for the various employee groups. These include Leader of the Future Programme, Master Programme, Managers Academy, Management Skills Development Programme for Technical Personnel, and LOTOS Group Succession Programme.



LOTOS ACADEMY IN 2016



Autumn 2016 training campaign

- > 10th edition
- > Annually from October to December
- >> **Topics:**
Time management, motivation and effectiveness,
- creativity,**
- workplace communication,
- managing generational diversity,**
- managing team diversity,**
- work-life balance,
- stress management,
- coaching and feedback as work tools,
- management and leadership skills,**
- information management techniques, fast reading,
- MS Office,
- HR portal functions,
- CRM operation,
- LOTOS Group Visual Identity System requirements.

>>> **TRIZ methods for engineers**

- > Topic: finding creative solutions to technical and technological problems

>>> **DISC for managers of LOTOS Kolej**

- > Topic: Adapting communication to workmate personality styles using the DISC method

LOTOS Academy training schedule – all personnel training

Every year from October to December we hold an intensive training programme for all personnel **Autumn Training**.

The LOTOS Academy training topics are selected based on:

- Needs assessment carried out as part of the periodic employee evaluation exercise (PEES),
- Development plans for personnel in each organizational unit,
- The organisation's business needs.

Second edition of the Master Programme

Within the framework of the Master Programme, we provide training to candidates for refinery foremen. The second edition of the programme was held in 2016. Thirty-two (32) people qualified to participate in the training programme based on the results of a Development Centre session. The purpose of the project is to develop soft skills in prospective foremen, including interpersonal communication, assertiveness, cooperation and motivation. The training and development team provided the trainees' managers with regular post-training reports and coordinated the transfer of knowledge acquired during training by relaying tasks to be completed in the workplace environment. In the fourth quarter of 2016, we monitored the practical application of the acquired knowledge and improvement in trainees' competencies achieved when performing their day-to-day tasks.

E-learning sessions for the personnel

We provided access to an **online English learning platform** for learners at all levels of advancement. The e-learning course covered both general and business English, with the platform's functionality designed to help improve the various language skills: listening comprehension, reading, writing and speaking.

We promoted and monitored the conduct of the mandatory '**Conflicts of interest**' e-learning course for new hires, which promotes knowledge of the **LOTOS Group Ethical Conduct Programme** among management and other personnel.

We have developed and are ready to implement a new e-learning course entitled '**Preventing Workplace Harassment**'. The e-learning materials present examples from a fictitious company in the context of harassment prevention. A training video provides trainees with the definition of workplace harassment, conditions for classifying a behaviour as harassment, the types of workplace harassment and its legal and social consequences, it helps to identify violent workplace behaviours and underscores the role of the group in preventing harassment.

Management training seminars

Management training seminars are cyclical two-hour meetings with inspiring people of business, science and culture. **Change management** was the preferred topic in 2016. We designed, among other things, a seminar called '**Do Not Be Afraid of Change, It Is Your Chance for Success**' and invited journalists Dorota Wellman and Marcin Prokop as guest speakers. They shared proven management techniques in cooperation, interpersonal relations, change and team diversity management.

Training for new EFRA plant operators

Given the ongoing refinery expansion and EFRA Project, in 2016 we devoted an **unprecedented** amount of time to train operations personnel in handling new process units. Getting operators ready to work with the new plant and equipment required a great deal of commitment from internal trainers and experts from across the LOTOS Group. We held **four 12-day training sessions for plant operators**, concluded with a written examination and the award of course completion certificates. **97 plant operators** were trained in 33 key areas of refinery technology and equipment by 26 trainers.

In 2016, we introduced electronic data sheets to facilitate the process of onboarding new hires at the LOTOS Group. The data sheets provide guidance to counsels and supervisors responsible for implementing the personnel induction programme. They are a step-by-step guide to introducing new personnel to their work environment and preparing them for the job. The data sheets can be edited during the entire induction programme term by counsels, foremen and trainers, enabling them to evaluate newly hired personnel based on their skills, knowledge, productivity and commitment, which is expected to make contract renewal decisions easier and more objective.

Creativity for engineers, or TRIZ method training

In 2016, we ran a two-day training course for engineers in TRIZ methodology, a concept developed by engineers that applies **standard processes, patents and patterns** to problem solving. It allows engineers to 'free their mind' and find the simplest solutions to technical and technological problems encountered at work on a daily basis. The TRIZ approach is to **reapply solutions invented in other fields** by people who faced similar problems. The training resulted in weekly TRIZ meetings at the Production Engineering Office

DISC – a communication course for LOTOS Kolej management personnel

DISC is an acronym that stands for **Dominating, Interactive, Steady and Cautious**, the four personality styles that all people possess to at various levels. DISC-compliant communication management is based on recognising the personality traits that dominate in a person and adapting communication and tasks assigned to that person. According to the principles of the DISC model, **a personal approach** is key to effective communication.

Even before the training started, we made sure that the model was incorporated into communication across the LOTOS Group, holding one-to-one consultations with managers to identify their preferred behaviour and communication styles. This made initial training sessions easier as trainees could focus on recognising and accepting the differences in individual communication styles, which are key skills to be acquired by people who want to apply the DISC model in communication management.

'Good Start for Beginners' programme

The LOTOS Group provides professional and organisational support to **new employees, as well as trainees and interns**.

In 2016, we held **seven training sessions for new hires**. The consultation meetings and training sessions were attended by **123 new employees** of the LOTOS Group.

The programme includes a one-day induction training, during which employees with longer length of service share their knowledge on the LOTOS Group. New hires are provided with employment-related information, learn the rules and regulations, as well as the corporate culture, get to know the systems and basics of crude oil processing and of the refining operations during an on-site visit. They also learn the corporate values and receive a copy of the *Code of Ethics* from their line managers.

‘High-quality Internships and Work Placements’ certificate

Our ‘Good Start for Beginners’ onboarding scheme was included in the ‘Polish Quality Framework for Internships and Work Placements’ programme and awarded the ‘High-quality Internships and Work Placements’ certificate by the expert of auditors team of the Polish Human Resources Management Association.

The summer internships and work placements at the LOTOS Group provide young people with development opportunities and a chance to gain experience in such areas as **technology, mechanics, electricity and power generation**, as well as **communication, marketing, accounting, finance, controlling, and HR**. Students are given an opportunity to perform interesting tasks related to **the Company’s actual business needs**.

In 2016, we extended the internships and work placements programme with a new module – special training in **personal branding**, including workshops. The training is intended to familiarise the interns and trainees with the LOTOS Group’s image as an employer, outline the rules and values applicable at the LOTOS Group and facilitate the first steps at the new workplace. The workshops enable the participants to establish new relations and help them build their position in the labour market by explaining the concept and techniques of **personal branding**.

Awards and distinctions in the HR area

[G4-16]

- **The LOTOS Group was awarded in the Top-Quality Human Resources competition** held by the Polish Human Resources Management Association. The certificate we received acknowledges the top quality standards of our human resources management processes.
- **Antal, an international consultancy, conducted the seventh edition of the 'Most Desired Employers' survey among specialists and managers. For the fifth time, LOTOS received this important distinction, ranking fourth in the 'Fuels, Energy, Mineral Production and Chemicals' category.**
- **LOTOS Biopaliwa was among the winners of the ninth edition of the 'Employee-Friendly Firm' competition.** This is the only competition in which winners are nominated by the employees themselves. The nominations are submitted by the **NSZZ Solidarność** trade unions operating at the companies. The purpose of the competition is to promote employers standing out for their application of best practices in terms of compliance with labour laws through stable employment, adherence to OHS regulations, and respecting the right to form and join trade unions.

Taking responsibility for internal and external stakeholders > The LOTOS Group – An Employer of Choice >
 More than work – sports and healthy lifestyle

More than work – sports and healthy lifestyle

- Our team took the third place in the prestigious SailBook Cup 2016 Regatta.
- Grupa LOTOS was nominated in ‘The Champ Awards’ competition in the category of ‘Advertising Campaign with Players of the Polish National Football Team and Robert Kubica’.

We provide our personnel with an opportunity to participate in numerous initiatives promoting sports and a healthy lifestyle. Our approach in this area places strong emphasis on the fact that **everyday vitality** of employees has a positive effect on their professional life and the quality of their work. This offers not only measurable value for the company, but also benefits for the employee’s family and broader environment.

At sea – third place in the SailBook Cup 2016 Regatta

- The LOTOS TKKF (Society for the Promotion of Physical Culture) sailors on the Odyssey yacht **achieved the greatest success in the history of the TKKF sailing section**, securing the third place in the KWR1 class of the prestigious Sailbook Cup 2016 Regatta. This event represents the longest regatta in Poland and the second longest in the Baltic Sea.

The Odyssey yacht crew comprised personnel of the Grupa LOTOS and LOTOS Serwis. They covered a distance of over 600 nautical miles on the Sopot – Gotland – Gotska Sandön island – Sopot route.

Their success inspired other employees to get interested in sailing –

- at the end of the sailing season (in October), the number of charter days on which our employees used the TKKF yachts in 2016 was **317**, including 88 days of chartering the Odyssey yacht to sail on the high seas.
- The popularity of sailing among personnel was also demonstrated by their participation in the second regatta of the LOTOS President’s Challenge Cup – **eight** crews signed up to compete.

The employees are able to pursue their sailing passion thanks to the TKKF fleet comprising **five inland and one seagoing yachts**. In order to encourage an increasing number of personnel to use the available fleet and make it easier for them to obtain the necessary licences, the sailing section organises or helps organize training on a regular basis. In 2016, 20 persons attended such courses.

A run with the champion – LOTOS Running Team

A membership in the Running Team Section is only one of the possible options offered by the LOTOS TKKF Society, but it enjoys significant interest among our personnel. The section counts nearly 60 active participants, who in 2016 competed 549 times in 288 running and multi-sport events. In all disciplines, the competitors covered a total distance of over 11,000 km. With a view to encouraging physical activity among a growing number of personnel we organized a training session with a professional, **Marcin Świerc, a three-time champion of Poland in long-distance mountain running**. The training for employees, preceded by a series of running tips given by the sportsman, took place on the hilly routes of the Tri-city Landscape Park. We also held a meeting with the overall running team of Marcin Świerc, at which the guests explained the idea of sky running, which is an extreme form of mountain running. Grupa LOTOS supported the runner in his preparations.

By bike, or the European Cycling Challenge

In 2016, the result delivered by our personnel again earned Gdansk the title of Europe's Best Cycling City, awarded as part of the European Cycling Challenge, an urban cycling competition.

146 cyclists from the LOTOS Group covered a distance of 51,994 km, which means that they more than circled the Earth.

Taking responsibility for internal and external stakeholders > The LOTOS Group – An Employer of Choice >
 Environmental protection every day – EKOID campaign

Environmental protection every day – EKOID campaign

In 2016, the Environmental Protection Office launched EKOID, an internal environmental protection campaign addressed to all personnel of the LOTOS Group. The campaign is part of the LOTOS Group's environmental responsibility programme.



The purpose of EKOID campaign is to encourage the employees to engage in environmental initiatives and to **pay more attention to how everyday activities affect the natural environment**. The expected benefits include reducing the environmental impact of individual segments of the organisation and cutting its operating expenses.

A dedicated tab has been created on the Lotostrada website that features, among other things, meters showing in a clear manner water and electricity consumption, cost of office supplies at the LOTOS Group, titbits, statistics, and suggestions concerning the LOTOS Group's environmental impact. To date, the tab has been visited approximately 400 times.

Through its fun element, that is a friendly logotype, positive motivation, but also education and data presentation, the campaign has raised the personnel awareness of environmental issues and the organization's environmental impact.

Taking responsibility for internal and external stakeholders > Quality and customer satisfaction

Quality and customer satisfaction

- In 2016, with environmental protection in mind, we launched new products: Marinol 4050 oil and long-life pavements.
- Transmil Extra XSP oil won a gold medal at the 11th International Trade Fairs of Hydraulics, Pneumatics, Control Systems, Drives, and Mechatronics.
- The TRI*M Index shows a high level of satisfaction of the LOTOS Group's business customers.
- The LOTOS service station chain ranked first among the competitors in terms of retail customer satisfaction with service station stores and additional services offered at the stations.

Our products



THE GLOBAL GOALS
For Sustainable Development



[G4-4]

Product life cycle



Hydrocarbon production.

Lotos Petrobaltic engages in oil and gas exploration and production. The **Polish fields in the Baltic Sea** account for **21%** of the company's total hydrocarbon output. The Lotos Petrobaltic offshore platform is the youngest of the four platforms owned by that company.



Maritime transport.

Petrobaltic's fleet includes **two tankers**, which are mainly used to collect, store and transport oil from the platforms and unload it at the **Naftoport terminal**.



Pipeline transport.

The Rozewie crude oil is transported by a **10-km-long pipeline** (a part of it runs the Martwa Wisła river) **from the Naftoport terminal** to the Gdansk refinery.



Crude oil processing and fuel production.

The annual processing capacity of the Gdańsk refinery is **10.5m tonnes** of crude oil. **Diesel oil** accounts for a half of the refinery's output. The refinery also manufactures over 0.5 million tonnes of aviation fuel a year, produced in the **naphtha sweetening** process. The fuel's trade name is **Jet A-1**.



Sales.

The aviation fuel from the Gdańsk refinery is sold by LOTOS-Air BP Polska at **five Polish airports**, where it is brought by road tankers, each with a capacity of 33,000 litres.

Continuous improvement of the product portfolio and new products

Product categories made from crude oil processing at the refinery:

- fuels (unleaded gasoline, diesel oil and light fuel oil),
- heavy fuel oil,
- bitumens,
- aviation fuel,
- naphtha,
- Propane-butane (LPG),
- Base oils.

New products

In 2016, the LOTOS Group developed and launched new products, namely:

- New lubricating oils**, including **Marinol 4050**, which expanded the product mix addressed to waterways transport customers. In 2015, following the introduction of more stringent regulations reducing the permitted sulphur content in marine fuels used in the Baltic Sea **from 1% to 0.1%**, it became necessary to develop lubricating oils with lower TBN. We have responded by launching our Marinol 4050 oil.
- Innovative pavement** produced as part of the **EFRA Project**, designed and constructed to last **up to 50 years**, with no need of major structural reconstruction and requiring only periodic top layer renewal. It is therefore a low-cost maintenance type of pavement, and distresses, if any, can be quickly remedied from the surface. Reduced number of necessary repairs has a positive effect on the environment.

[G4-PR1]

How we ensure safe use of products

We assess the health and safety impacts of all our key product and service categories, including in particular:

- Lubricating oils and lubricants (assessment process compliant with the EU REACH Directive and CLP Regulation),
- Bitumens and bitumen products,

- Marine fuel.

The LOTOS Group provides [Safety Data Sheets](#), which contain information on any hazardous properties of its products and on the rules and recommendations concerning their safe use.

Every project of the LOTOS Group which involves the marketing of a new product includes an analysis of potential threats the product's use may pose to the environment and customers.

Safe bitumens

Although petroleum bitumens are not classified as hazardous substances, in our materials, such as Information on Mixture Components and Safety Data Sheets, we present the latest recommendations on safe product handling.

Bitumen emulsions from LOTOS Group product portfolio are a mixture of bitumen and organic solvents. They represent environment hazard if used improperly. [Safety Data Sheets](#) contain information on how to handle them in an appropriate manner.

In particular, every project which involves the marketing of a new product includes an analysis of potential risks the use of such new product may pose to the environment and users.

Fuels under constant monitoring

We monitor the impact of our fuels on human health and safety already during their production. For each type of fuel we have drawn up a Safety Data Sheet on the hazardous substances it contains. Safety Data Sheets are delivered **directly** to each wholesale customer and are available to retail customers at the **LOTOS service stations**. Safety Data Sheets for non-fuel products are also made available at the LOTOS service stations.

The safety standards for fuel sales at **CODO stations** are set, developed and monitored by LOTOS Paliwa. Health and safety impacts monitoring at such stations includes:

- fuel deliveries,
- supervision of the service station's fuel infrastructure,
- actions taken in the case of accidents or failures,
- safety rules for customer service and fuel sales,
- Environmental management compliant with the PN-EN ISO 14001: 2005 standard,
- Occupational health and safety management compliant with the PN-N-18001 standard.

The personnel of LOTOS Paliwa conduct regular **inspections of fuel transport** in accordance with relevant procedures. The areas we monitor include:

- loading operations at fuel depots,
- safe passage of road tankers over the monitored routes, including correct cargo marking in compliance with the ADR requirements,

- safety of unloading sites,
- Unloading operations, to ensure their compliance with the established procedure and completion rate,
- Actions taken in the case of spills or failures.

The Occupational Health and Safety Team analyses the potential exposure of LOTOS Paliwa **service stations staff** personnel to chemical substances in motor fuels, and then describes the findings in occupational risk assessment documentation. As regards contractors' personnel, the Occupational Health and Safety Team checks whether the service stations personnel are familiar with the Safety Data Sheets for fuels sold at the LOTOS service stations.

Gold medal for Transmil oil

Our Transmil Extra XSP oil was named the best product in the 'New Machinery and Technologies' category and in 2016 it won a gold medal at the 11th International Trade Fairs of Hydraulics, Pneumatics, Control Systems, Drives, and Mechatronics. It has been designed for use in modern industrial gears operated in extreme operational environment, where traditional mineral gear oils fail and synthetic oils prove either too expensive or too aggressive for, e.g. seals and paint coatings. Transmil Extra XSP oil prevents lubricated friction joints from early wear and tear.

Dialogue with customers

[G4-PR5]

We measure our customers' satisfaction

Our key objective is to build lasting customer relationships through understanding customers' needs and delivering the expected product quality and safety. The level of customer satisfaction is measured in cooperation with our Marketing segment companies. We regularly conduct surveys which focus on: factors taken into account in the supplier appointment process, cooperation with the supplier's personnel, their accessibility and competences, quality and availability of products, time of response to requests for proposals (RFPs), pricing against competitive products, and the image.

Business customers satisfied with our services

Marketing surveys show a high level of satisfaction of LOTOS Group companies' business customers. In 2016 – as in 2015 – the level of customer satisfaction measured in accordance with the TRI*M¹ Index reached 76.

TRI*M Index, in mathematical terms, is a weighted average of answers to the following four questions:

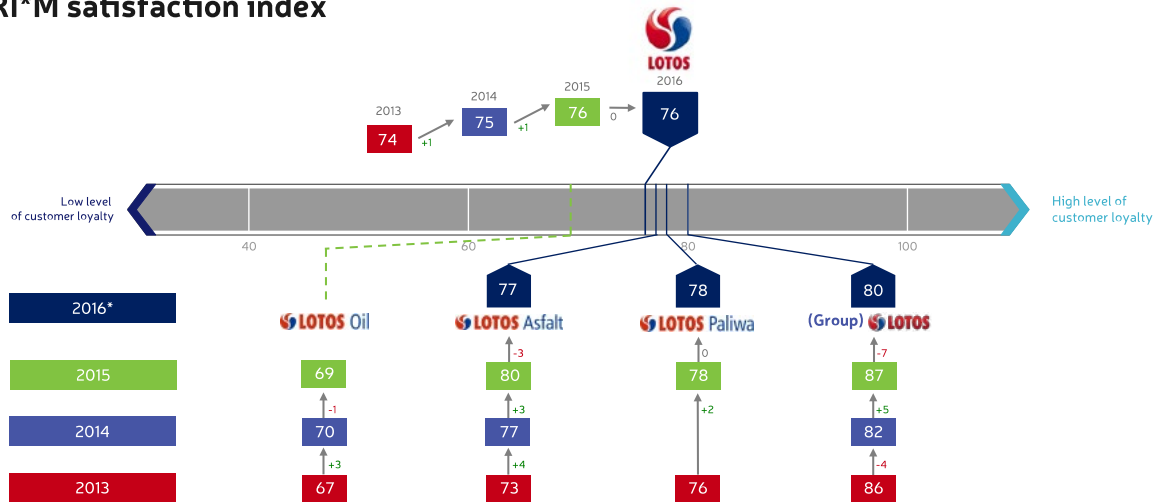
- overall rating,
- probability of recommendation,
- product/service repeat purchase probability,
- competitive advantage.

The higher the average, the higher level of customer satisfaction and loyalty.

In 2016, Grupa LOTOS and LOTOS Asphalt recorded a decline in customer satisfaction levels. The highest satisfaction levels, despite the decline, were reported by customers of Grupa LOTOS.

¹ According to TRI*M Index, being a single digit score, which measures customer satisfaction with the quality of services, calculated for each respondent covered by the survey.

TRI*M satisfaction index

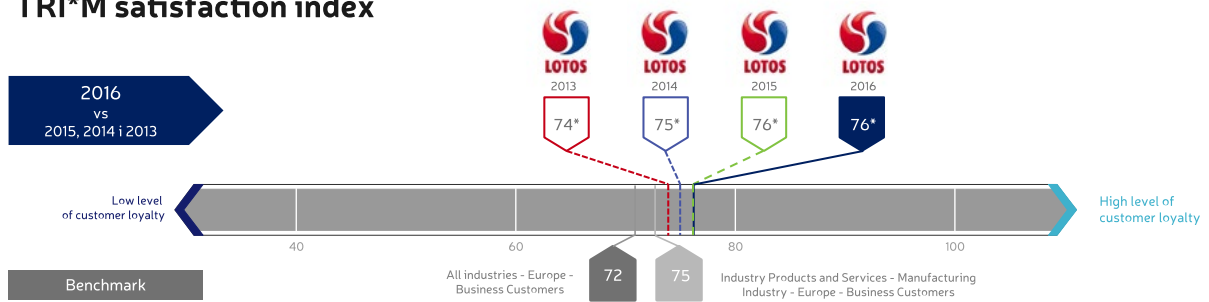


In 2016, Grupa LOTOS and LOTOS Asphalt rec-ordered a decline in customer satisfaction levels. The highest satisfaction levels, despite the decline, were reported by customers of Grupa LOTOS.

* In the year 2016 LOTOS Oil customers were not surveyed.

Compared to 2015, only minor changes were recorded in the survey findings.

TRI*M satisfaction index



The LOTOS Group's business customer satisfaction index stands at 76, indicating a high level of customer satisfaction, on a par with the last year's figure.

* The aggregate index for the LOTOS Group was calculated based on indices for individual LOTOS Group companies, adjusted for the number of their customers.

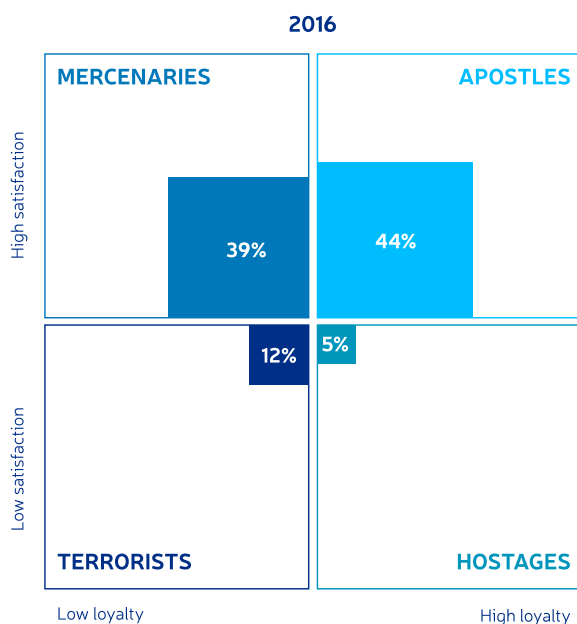
The same applies to the classification of our business customers based on the level of their satisfaction and loyalty, which indicates that:

44% are the 'Apostles', i.e. the most loyal and satisfied group of customers, who are emotionally tied with the brand and disseminate positive opinions about it. In this group, the probability of success of up-selling and cross-selling strategies is the highest.

39% are the 'Mercenaries', that is customers hunting for bargains and best offers. Their relationship with the LOTOS brand stems from their short-term interest in the pricing offer. Such customers are often costly to acquire (costs of promotion and advertising) and are highly disloyal.

12% are the 'Terrorists', i.e. customers who had bad experience with the LOTOS brand in the past and, wishing to take revenge, spread negative opinions about it. The likelihood of severing the connection with the brand in this group is relatively high.

5% are the 'Hostages'. They continue their relationship with the LOTOS brand, despite relatively low satisfaction with the services. In the case of such customers, there is typically some sort of an obstacle to their switching to another supplier.



Customers appreciate the stores and services at the LOTOS service stations

In the 'Monitoring of Service Station CHAIN Customers' Satisfaction' survey, comparing the satisfaction of LOTOS customers vs the competition, we were ranked above the market average in the following areas:

- satisfaction with the food and beverage offering – 2nd place in the Polish market,
- pricing image ('value for money' for fuels) – 2nd place,
- satisfaction with service station stores and extra services – 1st place,
- Loyalty solutions. The Navigator loyalty scheme receives higher ratings than similar solutions offered by other brands in each category assessed by customers: prizes to be won by scheme participants, customers actually acquired under the scheme, and customer satisfaction derived from participation in the scheme.

The survey was conducted in February and March 2016 by ARC Rynek i Opinia Sp. z o.o., an opinion polling company.

Taking responsibility for internal and external stakeholders > Quality and customer satisfaction >
Associations with LOTOS brand

Associations with LOTOS brand

Awareness of and associations with the LOTOS brand among retail customers largely depend on the image of LOTOS service stations, which are the main point of contact with consumers. The LOTOS brand is known to 93% of motorists. Its unaided awareness is 66%, and 'top of mind' awareness stands at 18%.

> 28% of respondents prefer LOTOS stations to other brands. 26% say that at the LOTOS stations they “feel the customer is king”.

Sponsorship of sports plays an important role in brand association and image. In this area, the LOTOS brand featured top-of-mind awareness of 17% in 2016 (2012: 9%) and unaided awareness of 32% (2012: 19%). LOTOS' commitment to sports sponsorship builds its image of an active and visible brand in the market.

> Furthermore, LOTOS has higher unaided brand awareness as a sponsor of the Polish national football team (20%) than as an oil producer (10%) and oil processing company (16%).

The sponsorship of the Polish footballers at the Euro 2016 Championship brought the following benefits:

After Euro 2016, the awareness of the LOTOS brand as a sponsor of the national football team rose by 16%. Ultimately, 43% of respondents see LOTOS as a sponsor of the Polish team.

A strong growth of our brand perception as the national team sponsor was observed among female respondents.

Taking responsibility for internal and external stakeholders >
 Social commitment – addressing important social and environmental issues

Social commitment – addressing important social and environmental issues



- 29 sports sponsorship projects, 23 arts and culture sponsorship projects, 13 social and environmental sponsorship projects.
- As part of the Maritime Education Programme, we sponsored the ‘How Do We See the Baltic Sea’ competition designed for pupils and students from the Baltic Sea region.
- We again supported young scientists participating in the E(x)plory Science Competition and Programme.
- As part of the LOTOS Group's support for vocational training, we hosted two site visits of university students.

Taking responsibility for internal and external stakeholders >
Social commitment – addressing important social and environmental issues > Dialogue with social partners

Dialogue with social partners

[G4-15]

In 2016, we engaged in an active public dialogue with social partners from the immediate surroundings of the Company's plants. We met with them to identify our stakeholders' needs and work out ways to fulfil them. In the case of such major projects as, for example, EFRA, the meetings gave an opportunity to provide key information on the project development and indirect local environmental impact.

[Taking responsibility for internal and external stakeholders](#) > [Social commitment – addressing important social and environmental issues](#) > [Sponsorship and patronage](#)

Sponsorship and patronage

[\[G4-EC7\]](#) [\[G4-EC8\]](#)

We engage in sponsorship activities in adherence to the LOTOS brand positioning strategy. Our stakeholders' needs are at the heart of everything we do. In communicating our sponsorship projects we emphasise development, motivation and passion. In line with this approach, marketing communication is focused on highlighting the premium quality of LOTOS products and selected services offered to direct customers.

Areas of our sponsorship activities

In 2016, we sponsored projects in three key areas:

- Sports sponsorship – 29 projects,
- Arts and culture sponsorship – 23 projects,
- Social and environmental sponsorship – 13 projects.

Maritime Education Programme – junior high school students love the sea

We have sponsored the Maritime Education Programme, addressed to first grade students of junior high schools in Gdansk, for many years. Since the start of the project in 2010, it has attracted **20,000 participants**. As part of the Programme, every year young people:

- **Learn sailing during free cruises** organized from May to September. The youths are trained in marine safety and take a four-hour trip along the Motlawa river, the Gdansk harbour channel, and in the Gdansk Bay. Each yacht's crew includes an attendant - a qualified steersman who is responsible for the group's safety.
- **Develop sensitivity to the condition of the natural environment, and especially the problems affecting the Baltic Sea.** Grupa LOTOS has been involved in the conservation of the Baltic Sea biodiversity for many years (for example, in 2016 it took part in protection and awareness initiatives run together with the Marine Station on the Hel Peninsula and the Foundation for the Development of the University of Gdansk).

As part of the Maritime Education Programme, we also held free sailing workshops for children and weekend classes on the Brzezno beach, and had educational stands during popular public events in the Gdansk-Gdynia-Sopot agglomeration, which enjoyed high popularity with the visitors.

[Maritime Education Programme](#) 

LOTOS for arts and culture

In 2016, Grupa LOTOS and its subsidiaries sponsored **23 culture and arts projects**. The most important of our sponsorship initiatives took place in the **Pomerania region**, mainly in Gdansk, Sopot and Gdynia cities. These included:

- The Shakespeare Festival, The Siesta Festival, the Two Theatres Festival of the Polish Radio and Television, The Daisy Chain Wonders - Summer Begins in Gdynia Music Festival, Ladies Jazz Festival, Festival of the City of Gdansk, the Energy of Freedom concert, and the Actus Humanus 2016 Festival.

We are also a strategic partner of the Baltic Sea Cultural Centre in Gdansk.

The main cultural sponsorship projects we were involved in in the **southern Poland** included:

- LOTOS Jazz Festival, Jasło Days, Czechowice-Dziedzice Days, Autumn Theatre Days, and the international 'Łemkowska Watra' Lemko Culture Festival.

E(x)plory – support to young scientists

It was the fourth time that we extended our **support** to the E(x)plory Scientific Competition, which brings together young talents and the world of science and business. **E(x)plory is the largest scientific competition in Poland**, offering **students aged 13–20** an opportunity to create and develop innovative projects, learn new ideas, and share experience with other young scientists and specialists.

Out of the 200 projects registered for the competition, the best 32 ones, developed by 52 young scientists, qualified for the national final. They dealt with a wide variety of issues – from artificial intelligence to environmental pollution and social research.

The winners were chosen by a jury consisting of renowned experts representing recognised scientific institutions and innovative businesses. One of them was Jan Biedroń, **Head of the Technology and Innovation Office at Grupa LOTOS**. The winners were awarded **scholarships**.



Young innovators and investors have an opportunity to meet at **congresses** held as an accompanying event to the competition. For the former, they have a chance to gain inspiration from the best and to confront their ideas with market expectations.

The competition is a part of the **E(x)plory Programme**, which also comprises regional festivals, research and development internships at laboratories of universities or science institutions, and business incubators.

The E(x)plory Scientific Competition is organised by the **Advanced Technologies** Foundation. It seeks to promote science and meet the challenges facing modern states by developing innovations and educating young people to become professionals in the world based on technological progress.

[E\(x\)plory Programme](#) 

Taking responsibility for internal and external stakeholders >
Social commitment – addressing important social and environmental issues > Social programmes and campaigns

Social programmes and campaigns

[G4-EC7] [G4-EC8]

LOTOS Cup in the Pomerania region

The 'Football Future with LOTOS' programme is carried out in 14 centres established in 2012–2015 with the support from local football clubs in the Pomerania region. At present, about **3,000 girls and boys** practice as part of the LOTOS programme and the Lechia Gdansk Football Academy, under the watchful eye of professional coaches.

12-year-olds representing all the centres covered by the 'Football Future with LOTOS' programme attended the LOTOS Junior Cup 2016. In order to reach the final, the teams had to win three matches in the knockout stage, which in 2016 was achieved by the team from Luzino.

As a socially committed business, in 2016 we continued our involvement with other social and sports projects addressed to children and teenagers. We supported the 'Gdynia Basketball Talents' project, **mini speedway in GKŻ Wybrzeże**, the Gdansk Sailing Club, **Weronika Baszak, a young tennis player**, and the Basketball Section of the Legia Warszawa club.

'Talent with LOTOS' – Czechowice-Dziedzice

In 2016, we started to cooperate with the Czechowice-Dziedzice Municipal Office on the '**Talent from Czechowice-Dziedzice, a Town of Fiery Enthusiasm**' educational programme. The initiative is a part of the wider 'Talent with LOTOS' project aimed to support talented students from the Pomerania region and the Jastó and Bielsko-Biała Counties – areas of key importance to our corporate social responsibility strategy.

The primary objective of the programme is to **foster scientific thinking** among students from elementary and junior-high schools. Under supervision of their teachers, the students carried out scientific and research projects, which were then assessed by the experts and, at the end of the year, awarded by Marian Błachut, Mayor of Czechowice-Dziedzice, and Grupa LOTOS. The first edition comprised 18 projects, involving 92 students.

The programme is a way to identify and develop talented individuals from the Czechowice-Dziedzice municipality, who will become qualified employees in the future, driving local business growth.

Jastó Science League with LOTOS

Once again, prizes and distinctions were awarded to research projects completed by the students as a part of the Jastó Science League with LOTOS. The third edition of this innovative educational project attracted **241 pupils from schools and preschools in Jastó**. Supervised by 71 teachers, they prepared 86 minor scientific and research projects and presented the results to the public.

In 2016, the main prize was awarded to a showcase project entitled 'Trends, Family Traditions or Sheer Coincidence – What Stands Behind Names Chosen For Children Born in Jasło in 2003', carried out by three elementary school girls.

Safety Belt Champions

Since 2014, acting jointly with the National Road Traffic Safety Centre, we have been involved in educational initiatives and have spread information on transporting children in safety seats and proper fastening of seat belts. To this end, we launched the 'LOTOS Safety Belt Champions' social campaign, addressed to drivers and passengers from all over Poland. We assume that the project will enhance their awareness of road safety rules and they will thus contribute to limiting the number of road accidents and their consequences. We seek to reach them through a number of activities under the 'LOTOS Safety Belt Champions' campaign, for example:

- Special 'pit-stops' have been set up at the LOTOS service stations to serve as expert inspection outlets where we invite drivers buying fuels and all service station customers. At the pit-stops:
 - a team of qualified experts check whether seat belts are fastened correctly and whether the driver's and passengers' headrests are properly adjusted,
 - the experts offer instruction on how to transport properly the youngest passengers in safety seats and how to install safety seats in order to ensure maximum comfort and safety while travelling,
 - children are invited to play, colour educational books, do puzzles and fasten dolls in safety seats,
 - all pit-stop visitors receive training materials.
- We hold 'Stay Safe – It's Good to Be Alive!' seminars and safety classes at selected elementary schools. During the classes children and youths learn by playing how to correctly fasten seat belts and how they work, how to properly install and fasten safety seats, how airbags are deployed, etc.

Facts and figures about the 'LOTOS Safety Belt Champions' campaign. Since 2014:

- **6,000 drivers** have opted for an inspection and instruction concerning proper adjustment of seats and headrests, installation of child safety seats and fastening of seat belts,
- **15,000 participants** have taken part in workshops devoted to fastening seat belts and installing safety seats,
- **Over 2,500 children** have attended the safety classes and workshops on proper seat belt fastening.

Kajetan Kajetanowicz, a multiple Polish rally champion, has agreed to be the campaign ambassador. The project is run under the auspices of the Polish National Police Headquarters, the General Inspectorate of Road Transport, the Automotive Industry Institute, the National Road Safety Council and the National Fire Service.

Taking responsibility for internal and external stakeholders >
Social commitment – addressing important social and environmental issues >
Visits of university students provide a new insight into the LOTOS Group

Visits of university students provide a new insight into the LOTOS Group

We are happy to host university students without any experience of working in a corporate environment. Their visits offer a fresh perspective on our organization's operations. In 2016, we were visited by students of the Cracow University of Economics and students of the University of Gdansk.

At the request of students from the EU Innovation Association in Cracow , the LOTOS Group's Human Resources Office team prepared specific tasks for them. The students presented the results of their work: **two proposed versions of a development programme for the personnel**. The meeting was held as a part of LOTOS' long-term cooperation with the academic community.

The visit of journalism students associated within the Inspiar group of the University of Gdansk focused on communication. The meeting hosted by the Communication Office personnel was mainly devoted to **the operations of internal media in the LOTOS Group**.

Taking responsibility for internal and external stakeholders >
 Social commitment – addressing important social and environmental issues >
 Cooperation and partnership in social initiatives

Cooperation and partnership in social initiatives

[G4-EC7] [G4-EC8]

- Since 2014, the families holding Large Family Card have saved PLN 1 million on purchases at the LOTOS service stations, as the LOTOS Group has partnered up with the Ministry of Family, Labour and Social Policy in the project.
- Having teamed up with the Academic Business Incubators, we offered attractive fuel discounts to 2,200 start-ups developing in 50 incubators.
- In 2016, we were a partner of the Development Initiation Forum, an event which seeks to foster networking and cross-sectoral cooperation in the Pomerania region.

Large families make savings at the LOTOS service stations

LOTOS service stations were the first in Poland to join the Large Family Card programme. Thanks to the cooperation between the LOTOS Group and the Ministry of Family, Labour and Social Policy, large families can save on purchases at the LOTOS stations – with the Large Family Card they can purchase fuel at a discount and use special offers on food services and car wash. Since December 2014, families holding the card have saved **PLN 1m** at our stations.

The discounts offered by our service stations chain made the Large Family Card not only a social programme but also an opportunity to successfully strengthen customer loyalty to the LOTOS brand.

The discount offer for holders of the Large Family Card at LOTOS [CODO stations](#) and selected [DOFO stations](#) includes:

- Discounts on fuels:
 - PLN 0.05 per 1 litre of LOTOS fuel,
 - PLN 0.10 per 1 litre of premium fuel,
- 20% off any food product at Cafe Punkt (Café Point),
- 20% off the cost of car wash.

Development Initiation Forum – cross-sectoral networking in the Pomerania region

2016 saw the fifth edition of the Development Initiation Forum. LOTOS has been a partner of the project since its beginning. The initiative is unique, both in the Pomerania region and on a nation-wide basis. It brings together representatives of non-governmental organizations (NGOs), local governments and business with the objective of initiating cross-sectoral cooperation to support development of the Pomerania region.

Every year the participants have the opportunity to share best practices and work out new solutions together. The thematic sessions and workshops were attended by approximately 250 people.


The Forum is accompanied by a grant contest aimed at offering financial support to initiatives that respond to the actual needs of the Pomerania region. Grupa LOTOS is on the jury of the contest. The winners of its third edition included:

- 'Canteen - Workplace for a Start', a project of the Social Innovation Foundation of Gdansk. The canteen is a place of work for young people from care facilities, where they can gain work experience to help them enter the labour market.
- '100re.pl – Poland's First Cooperative Shop', by Spółdzielnia Socjalna (Social Co-operative) 100% of Sopot. The project addresses the problem of unemployment among people with disabilities in the Pomerania region.
- 'Tczew Bike Couriers' by the "Pokolenia" (Generations) Foundation of Tczew. During the project, a social business, offering sustainable bike courier services, was created.
- 'LUCETA" Social Weaving Studio by the "Nadaktywni" (Hyperactive) Foundation of Gdynia, which together with partners from Chmielno and Pruszcz Gdanski supports elderly ladies by giving them an opportunity to teach weaving skills to the younger generation.

[Taking responsibility for internal and external stakeholders](#) >
[Social commitment – addressing important social and environmental issues](#) > [LOTOS Foundation](#)

LOTOS Foundation

[G4-EC7] [G4-EC8]


With a mini grant competition, the Foundation supported 11 projects developed by employees and addressed to nearly 1,300 people, mainly children.

First mini grant competition for personnel

As part of the employee volunteering programme, in 2016 we held a mini grant competition for our employees. In the first edition, we **co-financed 11 projects** developed by 53 employees of the LOTOS Group.

The projects were addressed to 1,296 people, including **1,183 children**, 107 elderly persons, and 6 adults. The personnel spent a total of 1,459 hours on the projects, of which nine were carried out in Gdansk, one in Rokitnica, and one in Lidzbark Warminski.

The maximum grant amount was PLN 3,000 and the aggregate amount distributed in the first edition was PLN 30,000. The grants were to cover the cost of activities which could not be done on a volunteer basis.

To have a project admitted to the competition, the applicants needed to fill in a simple request for a mini grant and plan the project to be carried out by at least three employees supervised by a leader. The jury evaluated the projects by their merits, usefulness for the local communities, and budgets. The co-financed projects had to be completed by mid-December 2016.

Through the LOTOS Foundation and the Regional Volunteer Centre, we provided mentorship and consultancy to the winning projects at every stage of their execution.

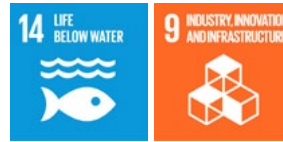
[More information on the LOTOS Foundation](#) 

Taking responsibility for internal and external stakeholders >
 Social commitment – addressing important social and environmental issues > Environmental protection programmes

Environmental protection programmes



THE GLOBAL GOALS
 For Sustainable Development



‘Headed for the Baltic Sea’

- > Currently, 80% of the global trade is transported by sea. The growing demand for maritime transport is a development opportunity for Poland. **The Baltic Sea is one of the busiest sea basins in the world.** However, in order to fully exploit this potential, it is necessary to map of needs concerning the expansion of connections and port facilities, development of terminal infrastructure, construction of platforms and logistics centres.
- > At the same time, it must be remembered that the **Baltic Sea was identified as a particularly sensitive sea area** by the International Maritime Organisation and is subject to special protection. Therefore, it is important to ensure that its sustainable development.

To this extent , we work jointly with local authorities and foundations under the ‘Headed for the Baltic Sea’ project. It combines our environmental efforts that we made under the ‘LOTOS Protects the Baltic Sea Wildlife’ and the ‘Protect the Wildlife of the Sobieszewo Island’ programmes in 2016. ‘Headed for the Baltic Sea’ is a partnership project focused on science and research, but it also seeks to promote active environmental protection and enhance environmental awareness.

[Headed for the Baltic website](#) 

In 2015, Global Compact initiated the **Baltic Sea Programme 2015-2020** to develop measures fostering sustainable development of the Baltic Sea region. Grupa LOTOS is a partner of the project.



LOTOS Group
Integrated Annual Report 2016

07

ABOUT THE REPORT

About the report > Transparency and consistency in disclosure of non-financial data

Transparency and consistency in disclosure of non-financial data

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This Integrated Annual Report 2016 **is the eighth integrated report of the LOTOS Group** and describes the organization's business in the financial year 2016, which corresponds to the calendar year. The previous integrated annual report was released in early September 2016. This year's report is based on the Global Integrated Reporting Initiative's (IIRC) Sustainability Reporting Framework and Guidelines (GRI G4, core level), together with the Oil and Gas Sector Supplement. Currently, in accordance with the GRI G4 framework, we report the most significant topics (38 profile indicators, 41 subjects, including seven sector-specific indicators).

The 2016 Report covers the Grupa LOTOS and all its direct subsidiaries:

- LOTOS Petrobaltic S.A.
- LOTOS Oil Sp. z o.o.
- LOTOS Asphalt Sp. z o.o.
- LOTOS Serwis Sp. z o.o.
- LOTOS Paliwa Sp. z o.o.
- LOTOS LAB Sp. z o.o.
- LOTOS Infrastruktura S.A.
- LOTOS Terminale S.A.
- LOTOS Kolej Sp. z o.o.
- LOTOS Ochrona Sp. z o.o.
- LOTOS Straż Sp. z o.o.

Additionally, the following indirect subsidiaries were included in the reporting of certain indicators because of their special role, nature of business and scale of environmental impacts:

- AB LOTOS Geonafta
- LOTOS Biopaliwa Sp. z o.o.
- RCEkoenergia Sp. z o.o.
- ENERGOBALTIC Sp. z o.o.

○ LOTOS Exploration and Production Norge AS.

However, the scope of reported data for LOTOS E&P Norge AS is limited compared to other companies because LOTOS E&P Norge is a licensee, so all environmental (and operational) matters are reported by the licence operators.

About the report > Process of defining the report content

Process of defining the report content

[G4-18] [G4-19] [G4-27]

In accordance with GRI G4 guidelines, the process had three steps:

1. Identification – determination of key topics in corporate social responsibility and business. Internal documents and materials of the LOTOS Group were analysed.

We also reviewed many external publications and media information about our company. We took into account the trends and guidelines of international standards for corporate social responsibility and non-financial reporting and made an in-depth analysis of the challenges, opportunities and risks facing the industry and its players.

2. Prioritization – in a dialogue with internal and external stakeholders, the materiality of key aspects for the organisation was identified.

3. Validation – during validation workshops, attended by 27 representatives of the management staff of the LOTOS group companies, we confirmed the final list of priority issues to be included in the 2016 report. The materiality matrix below presents those issues by (economic, social and environmental) aspects, and at the same time allows readers to go directly to the section describing our approach and activities related to a given issue. The tile size indicates whether a topic is defined as significant or very significant.

MATERIALITY ANALYSIS

ASPECTS: Economic aspects Environmental aspects Social aspects

SIGNIFICANCE: significant very significant

Financial condition, stock exchange performance, condition of LOTOS companies	Ensuring highly-qualified staff, acquiring and retaining talents	Business strategy, future growth forecasts	HR policy, future of employment Diversity and equal opportunities, non-discrimination
Spills, explosions, accidents – prevention, crisis management	Consumption of raw materials and consumables		Reserves and consumption of oil and gas
	Energy security	Employee training and development	Key investment projects in the Upstream and Refining segments

Impact on biodiversity and ecosystem services (water and land)	Communication with and support to local communities Spending on social initiatives	Key investment projects – innovation potential	Managing the risk of water contamination in drilling, refining, transport and other processes
Support to research and science development		CO ₂ emissions management Air emissions	
Innovative technological solutions, eco-efficiency Energy consumption, energy efficiency of processes and products	Cooperation with suppliers – ethical, social and environmental criteria taken into account in procurement processes		Customer relations
		Safety and accident prevention Health protection and promotion measures	Overall reduction of environmental impacts
Indirect economic impacts (infrastructure, services, impact on local economy)	Sponsorship – support to sports, culture and education		
		Fines and sanctions for non-compliance with environmental protection laws	Supply chain
Charitable activity – LOTOS Foundation Employee volunteering	Anti-corruption Corporate governance – ethics		
	Public policy – relations with public administration	Fuel quality	Climate change strategy (opportunities and risks)
Environmental spending and investments			

About the report > Sustainable Development Goals

Sustainable Development Goals

The activities presented in this Report are often a response to the challenges identified in the Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development, announced by the UN in September 2015. We take steps to implement those goals, for instance through long-term programmes aiming at the development of employees of all ranks and care for our social and market environment.

The Sustainable Development Goals (SDGs) that the LOTOS Group particularly supports with its activities:

- **Goal 4 – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**
- **Goal 6 – Ensure availability and sustainable management of water and sanitation for all**
- **Goal 7 – Ensure access to affordable, reliable, sustainable and modern energy for all**
- **Goal 8 – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**
- **Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**
- **Goal 10 – Reduce inequality within and among countries**
- **Goal 12 – Ensure sustainable consumption and production patterns**
- **Goal 14 – Conserve and sustainably use the oceans, seas and marine resources for sustainable development**
- **Goal 15 – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**



About the report > Contact details

Contact details

[G4-5] [G4-31]

For more information on the business as well as social and environmental aspects of the LOTOS Group operations, see the Grupa LOTOS website at www.lotos.pl/en.

Correspondence should be sent to the address of the Company's head office:

Grupa LOTOS S.A.

ul. Elbląska 135
PL 80-718 Gdańsk

Any enquiries relating to the corporate social responsibility of Grupa LOTOS should be addressed to:

Liliana Ciechanowicz
e-mail: csr@grupalotos.pl

Enquiries concerning the Company's investor relations should be addressed to:

Paweł Bujnowski
Head of the Investor Relations Office
e-mail: ir@grupalotos.pl

Enquiries concerning relations with the media should be addressed to:

Communication Office
e-mail: media@grupalotos.pl

About the report > GRI G4 content index

GRI G4 content index

[\[G4-32\]](#)

Strategy and analysis

Indicator		Section of the Report	Global Compact principles	Comments
G4-1	Statement from the most senior decision-maker of the organisation (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organisation and the organisation's strategy for addressing sustainability	Letter from the President of the Management Board Letter from the Chairwoman of the Supervisory Board		

Organisational profile

Indicator		Section of the Report	Global Compact principles	Comments
G4-2	Description of key impacts, risks, and opportunities	Risk management		
G4-3	3 Name of the organisation	Key information about the organisation		
G4-4	Overview of our organisation	Key information about the organisation Our products		
G4-5	Location of the organisation's headquarters	Contact details		
G4-6	Number of countries where the organisation operates, and names of countries where either the organisation has significant operations or that are specifically relevant to the sustainability topics covered in the report	Key information about the organisation		
G4-7	Nature of ownership and legal form	Key information about the organisation		
G4-8	Markets served (geographic breakdown, sectors served, and types of customers)	Key information about the organisation		

	breakdown, sectors served, and types of customers and beneficiaries)	organisation	
G4-9	Scale of the organisation	Our performance – Discussion of the LOTOS Group's financial position Employment at the LOTOS Group in figures	
G4-10	Total number of employees by employment contract and gender	Employment at the LOTOS Group in figures	
G4-11	Percentage of total employees covered by collective bargaining agreements	Employment at the LOTOS Group in figures	
G4-12	Organisation's supply chain	The LOTOS Group's external impacts along the entire supply chain	
G4-13	Significant changes during the reporting period regarding the organisation's size, structure, ownership, or its supply chain Overview of our organisation	Key information about the organisation	No significant changes
G4-14	Explanation of whether and how the precautionary approach or principle is addressed by the organisation	Risk management	
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organisation subscribes or which it endorses	Trading and other partners Dialogue with social partners	Additional information on external initiatives undertaken by the LOTOS Group is available on our website
G4-16	Memberships of associations (such as industry associations) and national or international advocacy organisations	Trading and other partners Awards and distinctions in the HR area	Additional information on external initiatives undertaken by the LOTOS Group is available on our website

Identified material aspects and boundaries

Indicator		Section of the Report	Global Compact principles	Comments
G4-17	Operational structure of the organisation, including main divisions, operating companies, subsidiaries, and joint ventures	Transparency and consistency in disclosure of non-financial data		
G4-18	Process for defining the report content and the aspect boundaries and how the organisation has implemented the reporting principles for defining report content	Process of defining the report content		
G4-19	Material aspects identified in the process for defining report content	Process of defining the report content		
G4-20	Aspect boundary within the organisation for each material aspect			All aspects have been identified as material in terms of activities and impact of all or certain Grupa LOTOS companies. The relevance for selected companies has been appropriately marked in the report.
G4-21	Aspect boundary outside the organisation for each material aspect			The indicator has been reported except for emissions intensity ratio – it has not been included because of incomparability of data between the companies.
G4-22	Effect of any restatements of information provided in previous reports, and the reasons for such restatements			No restatements were made.
G4-23	Significant changes from previous reporting periods in the scope and aspect boundaries	Transparency and consistency in disclosure of non-financial data		

Stakeholder engagement

Indicator		Section of the Report	Global Compact principles	Comments
G4-24	List of stakeholder groups engaged by the organisation	Who do we engage with and why?		
G4-25	Basis for identification and selection of stakeholders with whom to engage	Who do we engage with and why?		
G4-26	Organisation's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process	Who do we engage with and why?		
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organisation has responded to those key topics and concerns, including through its reporting	Process of defining the report content		

Report profile

Indicator		Section of the Report	Global Compact principles	Comments
G4-28	Reporting period for information provided	Transparency and consistency in disclosure of non-financial data		
G4-29	Date of most recent previous report	Transparency and consistency in disclosure of non-financial data		
G4-30	Reporting cycle	Transparency and consistency in disclosure of non-financial data		
G4-31	Contact point for questions regarding the report or its contents	Contact details		
G4-32	GRI content index	GRI content index		
G4-33	Organisation's policy and current practice with regard to seeking external assurance for the report			The Report has not been externally assured

Governance

Indicator		Section of the Report	Global Compact principles	Comments
G4-34	Governance structure of the organisation, including committees of the highest governance body	Ethics and corporate governance		
G4-38	Composition of the highest governance body and its committees	Ethics and corporate governance		
G4-39	Information whether the Chair of the highest governance body is also an executive officer	Ethics and corporate governance		

Ethics and integrity

Indicator		Section of the Report	Global Compact principles	Comments
G4-56	Organisation's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	Ethics and corporate governance		
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organisational integrity, such as helplines or advice lines	Ethics and corporate governance		
G4-58	Reporting concerns about unethical or unlawful behavior, and matters related to organisational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines	Ethics and corporate governance		

Economic aspect

Indicator		Section of the Report	Global Compact principles	Comments
ECONOMIC PERFORMANCE		Our performance – discussion of the LOTOS Group’s financial position		
G4-EC1	Direct economic value generated and distributed	Our performance – discussion of the LOTOS Group’s financial position		
MARKET PRESENCE		The LOTOS Group – An Employer of Choice		
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	Facts and Figures About LOTOS Group Employment		
INDIRECT ECONOMIC IMPACTS		Social commitment – addressing important social and environmental issues		
G4-EC7	Development and impact of infrastructure investments and services supported	Sponsorship and patronage Social programmes and campaigns Cooperation and partnership in social initiatives LOTOS Foundation		
G4-EC8	Significant indirect economic impacts, including the extent of impacts	Sponsorship and patronage Social programmes and campaigns Cooperation and partnership in social initiatives LOTOS Foundation		
PROCUREMENT PRACTICES		The LOTOS Group’s external impacts along the entire supply chain		
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	The LOTOS Group’s external impacts along the entire supply chain		
RESERVES		We reduce energy consumption		
OG1	Volume and type of estimated proved reserves and production	Principal activities and performance in 2016 Our environmental performance		

Environmental aspect

Global Compact

Indicator		Section of the Report	principles	Comments
MATERIALS		We reduce energy consumption		
G4-EN1	Materials used by weight or volume	We reduce energy consumption	8	
ENERGY		Our environmental performance		
G4-EN3	Energy consumption within the organisation	Our environmental performance	8	
G4-EN6	Reduction of energy consumption	Our environmental performance	8	The indicator has been reported descriptively only.
WATER		Our environmental performance		
G4-EN8	Total water withdrawal by source	Our environmental performance	8	
G4-EN10	Percentage and total volume of water recycled and reused	Our environmental performance		
BIODIVERSITY		Our environmental performance		
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Our environmental performance	8	
G4-EN14	Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	Our environmental performance		
OG4	Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored	Our environmental performance	8	
EMISSIONS		Our environmental performance		
G4-EN15	Direct greenhouse gas (GHG) emissions	Our environmental performance	8	
G4-EN16	Energy indirect greenhouse gas (GHG) emissions	Our environmental performance	8	
G4-EN18	Greenhouse gas (GHG) emissions intensity	Our environmental performance	8	
G4-20	Emissions of ozone-depleting substances (ODS)	Environmental efficiency		
G4-EN21	NO _x , SO _x , and other significant air emissions	Our environmental performance	8	The indicator has been reported except for emissions intensity ratio –

			it has not been included because of incomparability of data.
EFFLUENTS AND WASTE		Our environmental performance	
G4-EN22	Total water discharge by quality and destination	Our environmental performance	8
OG5	Volume and disposal of formation or produced water	Safety management and industrial failure prevention	
G4-EN23	Total weight of waste by type and disposal method	Our environmental performance	8
G4-EN24	Total number and volume of significant spills	Our environmental performance	8
OG6	Volume of flared and vented hydrocarbon	Our environmental performance	8
OG7	Amount of drilling waste (drill mud and cuttings) and strategies for treatment and disposal	Environmental efficiency	8
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	Environmental efficiency Our environmental performance	8
PRODUCTS AND SERVICES		Environmental efficiency	
G4-EN28	Percentage of products sold and their packaging materials that is reclaimed, by category	Environmental efficiency	
COMPLIANCE		Our environmental performance	
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	Our environmental performance	8
OVERALL		Our environmental performance	
G4-EN31	Total environmental protection expenditures and investments by type	Our environmental performance	8
ENVIRONMENTAL GRIEVANCE MECHANISMS		Our environmental performance	
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	Our environmental performance	
PRODUCTS AND SERVICES		We reduce energy consumption	

OG8	Benzene, lead and sulphur content in fuels	We reduce energy consumption
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Social aspect: labour practices and decent work

Indicator		Section of the report	Global Compact principles	Comments
EMPLOYMENT		The LOTOS Group – An Employer of Choice		
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	Facts and Figures About LOTOS Group Employment	6	
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	Facts and Figures About LOTOS Group Employment	3	
OCCUPATIONAL HEALTH AND SAFETY		Safety First		
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	Safety First	6	
TRAINING AND EDUCATION		Career at the LOTOS Group		
G4-LA9	Average hours of training per year per employee by gender, and by employee category	Career at the LOTOS Group	6	
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	Career at the LOTOS Group	6	
DIVERSITY AND EQUAL OPPORTUNITY		Ethics and corporate governance		
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	Ethics and corporate governance	6	

Social aspect: society

Indicator		Section of the Report	Global Compact principles	Comments
ANTI-CORRUPTION		Ethics and corporate governance		
G4-S03	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	Ethics and corporate governance	10	
G4-S04	Communication and training on anti-corruption policies and procedures	Ethics and corporate governance	10	
G4-S05	Confirmed incidents of corruption and actions taken	Ethics and corporate governance	10	
ASSET INTEGRITY AND PROCESS SAFETY (OG)		Our environmental performance		
OG13	Number of process safety events, by business activity	Our environmental performance		

Social aspect: product responsibility

Indicator		Section of the Report	Global Compact principles	Comments
CUSTOMER HEALTH AND SAFETY		Our products		
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	Our products	10	
PRODUCT AND SERVICE LABELING		Quality and customer satisfaction		
G4-PR5	Results of surveys measuring customer satisfaction	Dialogue with customers		
FOSSIL FUEL SUBSTITUTES (OG)		We invest in state-of-the-art technologies		
OG14	Volume of biofuels produced and purchased meeting sustainability criteria	We invest in state-of-the-art technologies		



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