

## Energy

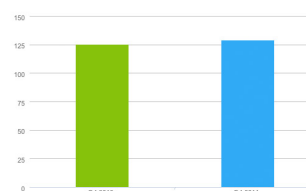
In line with "Poland's Energy Policy until 2030", whose main objectives are to improve energy efficiency and mitigate the environmental impact of industrial processes, in 2011 Grupa LOTOS began implementing an energy management system compliant with the EN 16001:2009 and ISO 50001:2011 standards. Steps have been taken to introduce systemic solutions in the area of energy management. They are designed to improve energy efficiency, for example by identifying key energy aspects of the Company's operations, which include upgrade and development work related to energy efficiency.

In 2011, an Energy Efficiency Team was set up within the operating segment of Grupa LOTOS. Its role is to initiate projects aimed at monitoring and improving energy efficiency. In addition, it will work to maintain and enhance efficiency at all stages of the Gdańsk refinery's operations.

A computer system Visual Mesa by Soteica is currently used by Grupa LOTOS to visualise and optimise energy consumption. The system supervises energy infrastructure of the refineries on a continuous basis, including gas and heating oil systems, and the process steam system, and uses optimisation algorithms to suggest changes to the energy system which reduce energy system costs.

The ingredients and their proportions in fuel products of Grupa LOTOS comply with requirements following from the National Indicative Target concerning the proportion of renewable materials in road fuels. Both gasolines and diesel oils contain biocomponents obtained from renewable materials.

Change in the number of company cars at Grupa LOTOS



### Direct energy consumption of Grupa LOTOS by primary energy source

Item	Unit	Direct energy sources purchased	Direct energy sources produced	Direct energy sources sold	Direct, total energy consumption
Natural gas	GJ	1,383,334			1,383,334
Fuel gas	GJ		10,053,891	194,860	9,859,031
HSFO fuel oil	GJ		3,434,143		3,434,143
LSFO fuel oil	GJ	4,382,235	1,177,603		5,559,838
HON light fuel oil			134,188		134,188
Electricity	GJ			79,499	-79,499
Heat	GJ			86,541	-86,541
<b>Total</b>	<b>GJ</b>	<b>5,765,569</b>	<b>14,799,825</b>	<b>360,900</b>	<b>20,204,494</b>

### Indirect energy consumption of Grupa LOTOS by primary energy source

Item	Unit of measurement	Intermediate energy purchased
Electricity	GJ	4,163,239

Grupa LOTOS undertakes various initiatives aimed to limit its indirect energy consumption. This may be illustrated by our car fleet policy. The makes and models of company cars are selected every three years. During the decision-making process, the Company takes into account the financial aspect, but also CO<sub>2</sub> emissions, fuel consumption levels and engine capacities. Currently, the Company has no cars with engine capacities in excess of 2 litres. This policy will be continued in the coming years, with an option to use cars with even smaller engine capacities.

In 2011, experts from Grupa LOTOS, working with rally drivers and a test group of car users, created the "Optimum Driving" programme, which involves teaching 12 key principles of optimum driving. The principles are a tool allowing drivers to use their cars efficiently, thus achieving cost savings (lower fuel consumption and spare parts use), reducing harmful gas emissions and improving driving safety. The programme is targeted at employees, customers of LOTOS fuel stations and the

Company's social environment at large. Changing bad driving habits may limit fuel consumption by as much as 30%.

**Fuel consumption of company cars at Grupa LOTOS [litres]**

Period:	Fuel	
	Unleaded gasoline	Diesel oil
2010	H 1	56,634.20
	H 2	20,605.61
2011	H 1	53,811.05
	H 2	36,217.01
2011	H 1	51,305.63
	H 2	32,690.38
2011	H 1	58,103.62
	H 2	31,633.70