Key R&D projects

Grupa LOTOS is the leader of a consortium conducting the HESTOR research project **co-financed by the National Centre for Research and Development**.

HESTOR project

The project's objective:

Examine the efficiency of storing hydrogen obtained from surplus energy generated from renewable sources.

The intended results:

The surplus electricity used to generate hydrogen through electrolysis would be delivered by wind farms and solar power plants. Hydrogen stored in caverns would be used:

- Directly in technological processes at the Grupa LOTOS' refinery, thus reducing the need to generate hydrogen from natural gas;
- For energy generation as a fuel firing gas turbines during peak demand hours.

HESTOR and the environment

The pro-environmental effect of the project would be a reduction in greenhouse gas emissions by balancing the fluctuating supplies of electricity from renewable sources.

In a longer time horizon, hydrogen generation and storage on a larger scale would increase the share of RES in Poland's energy mix, owing to better utilization of the output of wind farms and solar power plants.

Partners of Grupa LOTOS in the HESTOR project:

- Warsaw University of Technology;
- Operator Gazociągów Przesyłowych GAZ-SYSTEM S.A.;
- Stanisław Staszic AGH University of Science and Technology of Kraków;
- Ośrodek Badawczo-Rozwojowy Górnictwa Surowców Chemicznych CHEMKOP Sp. z o.o.;
- Silesian University of Technology.

Smart specializations of the Pomerania region

On April 9th 2015, the Local Government of the Gdańsk Province passed a resolution to establish smart specialization areas in the Pomerania region. One of the four approved specializations was 'Eco-efficient technologies in production, transmission, distribution and consumption of energy and fuels' recommended by a consortium whose members include LOTOS Group companies: Grupa LOTOS, LOTOS Asfalt, LOTOS Lab, LOTOS Oil, and LOTOS Petrobaltic.

Smart specializations of the Pomerania region cover business activity areas which may prove crucial to the region's future competitive position, and as such they are to be promoted by easier access to funds allocated as part of the Regional Operational Programme for the Gdańsk Province for 2014 −2020.

The project's objectives:

- Obtain the smart specialization status to facilitate the commencement of innovative projects related to effective crude oil production technologies and production of state-of-the-art Group 2 base oils;
- Develop technologies for obtaining high-margin petroleum products, and production technologies for next generation biofuels, i.e. biofuels that do not compete with food production;
- Develop state-of-the-art building materials and their application technologies.

Partners of the LOTOS Group companies in the project:

- Energa;
- Silesian University of Technology;
- University of Gdańsk;
- Polish Naval Academy;
- Gdynia Maritime University;
- Institute of Fluid-Flow Machinery – Polish Academy of Sciences;
- Institute of Power Engineering.

More information on smart specializations of the Pomerania region

Best practices

Cooperation with higher education and research institutions:

- In one of the projects planned for 2015–2016 LOTOS Petrobaltic is a member of a consortium which is among the four consortia that have obtained the status of smart specialization of the Pomerania region (the 'Off-shore and port and logistics technologies' project). 39 enterprises, 10 academic institutions and 10 business support organizations participate in the programme, run by the Marshal Office of the Gdańsk Province.

- Grupa LOTOS is conducting analyses to prepare a submission for a competition to obtain co-financing for R&D projects executed by large enterprises, announced by the National Centre for Research and Development. The project would be the continuation of a study implemented in 2014, focusing on hydrocarbon generation, expulsion, migration and accumulation, performed with the use of technologically advanced tools and techniques for modelling petroleum processes in exploration activity and the state-of-the-art methods for analysis of rock and porous media from the Baltic Sea basin.

Cooperation with customers and suppliers, experience sharing in the industry:

- LOTOS Petrobaltic and Polskie Górnictwo Naftowe i Gazownictwo signed joint operating agreements concerning the Kamień Pomorski (in north-western Poland) and Górowo-ławieckie (in north-eastern Poland) licences. Together the two companies performed a 3D seismic survey in the Kamień Pomorski licence area (survey area: 134.8 sq. km, area with receiver points: 267.5 sq. km), and processed and interpreted the image against a part of an archive 3D seismic image. The cooperation on the Górowo ławieckie licence involved the acquisition of a total of 200.4 km of 2D seismic data and processing of archive data.

- Grupa LOTOS and Honeywell entered into an agreement on supervision of control systems (80% of the systems were developed by Honeywell). The agreement provides for effective management of the life cycle of individual units and ensures the highest level of safety at work.

- LOTOS-Air BP Polska and the Olsztyn Mazury Airport signed an agreement for the supply of aviation fuels (effective as of January 2016). From the commencement of talks on prospective cooperation, LOTOS-Air BP Polska's staff actively supported the airport in its work on fuel infrastructure, formal and technical aspects, as well as tax and legal matters, to ensure that the airport is ready to start operations on time.

- Grupa LOTOS held a meeting with heads of information divisions from more than a dozen companies based in the Pomerania region. The main theme of the meeting was data and system security issues. It was one of the regional meetings of the CIO Club.

- In May 2015, the LOTOS Group joined the Technology Transfer Platform, which collect the resources of companies willing to share their innovative solutions and information on the needs of entities that look for innovations. The search mechanism helps match technology providers with seekers. It is a helpful tool for inventors, research institutes and businesses. Other participants of the Technology Transfer Platform include: Enea, Polska Grupa Energetyczna (PGE), KGHM Polska Miedź, and Polska Grupa Zbrojeniowa.