

Petrochemicals

LUKOIL's petrochemical business is one of the biggest in Russia, CIS and Eastern Europe. Company plants in Russia, Ukraine and Bulgaria make pyrolysis and organic synthesis products, fuel fractions and polymer materials. LUKOIL meets a major share of Russian domestic demand for various chemicals and is a major exporter of chemicals to more than 30 countries worldwide.

In accordance with its development strategy in the petrochemicals sector, LUKOIL is steadily increasing production of chemicals with high value added (polymers, monomers and organic synthesis products) and reducing production of chemicals with low value added (secondary pyrolysis products and fuel fractions).

LUKOIL petrochemical plants produced 902,000 tonnes of petrochemicals in 2009, which is 38% less than in 2008. The reduction was due to suspension of production at Karpatneftekhim in May 2008 for upgrading work as well as reduction of demand for petroleum products.

Markets for petrochemical products were highly volatile in 2009. A sharp decline of prices in the first half of the year (continuing from the end of 2008) was followed by a modest recovery in the second half of the year. As a result, the sale price for polyethylene in Russia declined by 11.7% in the course of the year, polypropylene prices fell by 18.4%, and prices for benzol fell by 16.9%. Price declines for all three products were even more marked in Europe, where prices dropped by 27.4% for polyethylene, 27.6% for polypropylene and 32.8% for benzol.

LUKOIL moved ahead with modernization of existing production and installation of new production in 2009 as part of its strategy for development in the petrochemical sector. Capital expenditures in the sector were \$113 million in 2009.

Production was halted at the **Karpatneftekhim** plant in May 2008 so that a large-scale upgrade could be carried out. Construction and assembly work was completed in 2009 on a new chlorine and caustic soda production unit using membrane electrolysis technology. Annual capacity of the new unit is 182,000 tonnes of gaseous chlorine and 200,000 tonnes of caustic soda. Completion of the project will enable Karpatneftekhim to produce caustic soda, which meets international quality standards, and to fully cover the plant's own chlorine needs. Commissioning of the unit is scheduled in mid-2010.

Karpatneftekhim also continued work on construction of a suspended polyvinylchloride unit with annual capacity of 300,000 tonnes. Its integration with the plant's capacities for production of vinylchloride monomer will greatly increase overall efficiency. Commissioning of the unit is scheduled at the end of 2010.

Routine repair work was carried out at **Saratovorgsintez** in 2009 and the sodium cyanide unit, which was installed in 2008, reached its target production level of 15,000 tonnes per year. The plant achieved input and energy savings in the reporting year.

At **Stavrolen** reconstruction of the storage facility for liquefied hydrocarbon gases continued in 2009 in order to increase gas feedstock handling and processing from 200,000 to 400,000 tonnes per

LUKOIL GROUP PETROCHEMICAL PLANTS

PETROCHEMICAL PLANTS

Saratovorgsintez

Saratov (Russia)

- Acrylonitrile and other organic synthesis products

Stavrolen

Budenovsk (Stavropol Region, Russia)

- Polyethylene and other products

Karpatneftekhim

Kalush (Ukraine)

- Polyethylene, vinyl chloride and other products

REFINERIES WITH PETROCHEMICAL UNITS

LUKOIL Neftokhim Burgas AD

Burgas (Bulgaria)

- Polymers and organic synthesis products



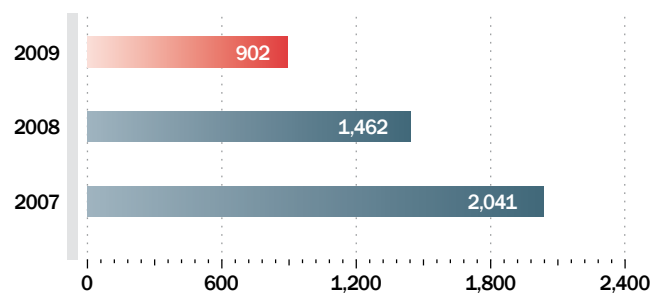
year. Commissioning of the facility is scheduled in 2010. Polypropylene output reached the target level of 360 tonnes per day in the fourth quarter of 2009, producing new high-index grades with high value added. A new polyethylene compounding line was also commissioned in the reporting year, and the plant reduced unit consumption of electrical energy in production of polyethylene and polypropylene, as well as reducing consumption of natural gas in olefin production.

One of the main projects scheduled by LUKOIL for implementation in the next few years is construction of the **Caspian Gas-chemical Complex**. The Complex will use natural gas and condensate produced by LUKOIL Group in the Caspian region and will have annual capacity of at least 600,000 tonnes of ethylene.

The purpose of the project is to increase value added through deeper processing of gas feedstocks (ethane and natural gas liquids). The Caspian Complex will carry out refining of ethylene and its derivatives into polyethylene, polypropylene and other petrochemical products.

Pre-project work for the Complex was completed in 2009 including preliminary analysis of proposals by licensor firms and engineering companies, as well as further cooperation with the Stavropol regional government aimed at increasing production and sales volumes of petrochemical products.

PETROCHEMICAL PRODUCTION, THOUSAND TONNES



Work in 2010 will include definition of production configuration at the Complex and development of a master plan, choice of licensor firms for petrochemical technologies to be used at the Complex, making of licensing agreements and start of design work on base projects (particularly for processing of associated gas).