EXECUTIVE SUMMARY

AB Mažeikių Nafta owns and operates the only refinery in the Baltic region and as such plays a crucial role in the stability and safety of the local energy sector. Mažeikių Nafta is the supplier of petroleum products to both Lithuanian market, as well as the neighbouring EU states, i.e. Latvia, Estonia, Poland etc.

The reliability of the operations of the refinery is based upon availability of three essential elements: efficient and modern oil processing installations, stable supply of crude oil and access to safe and reliable product transportation infrastructure.

Today, one of the key elements of this system is not in place, as Mažeikių Nafta does not have a product pipeline. Lack of this component poses a great risk to economic standing of the Mažeikių Nafta and might cause negative impact on the whole Lithuanian economy. The common and world wide accepted practice in the oil business is when crude and products are transported by pipelines, as the most safe, reliable and cost effective method.

Stability of the refinery's operations and supply of the products to the market is the foremost priority of the management of Mažeikių Nafta and is in line with the current energy policy of the Government of Lithuania. The successful modernization of the refinery planned for the coming years is dependant on available capacities to transport additional volumes of products produced in the safest, environmentally sound and cost effective way. By stating so the management of AB Mazeikiu Nafta has concluded that an urgent construction of the product pipeline a project of utmost importance.

In order to ensure attitudes of *National Energy Strategy* approved by Decision of the Seimas of the Republic of Lithuania (No. X-1046 of 18 January 2007), and to make the development of energy sector of Lithuanian Republic more sustainable by the way of ensuring effective and interdependent development of energy production, transport and storage installations, implementing requirements formulated for energy sector in the appropriate European Union directives, as well to follow the provisions of LR Economy Minister and LR Environmental Minister (No. 4-95/D1-136 of 8 March 2005) *On planning of energy objects of national importance*, AB Mažeikių Nafta has prepared **AB Mažeikių Nafta Development Plan for Product Sales and Shipping** (further – Development plan).

Situation of oil sector in Lithuania and European Union is analyzed in the Development plan. Means which will let to ensure continuous handled oil conversion activity of AB Mažeikių Nafta are foreseen and in the same time to promote of strengthening of security of Lithuanian energy sector. The assessment of aims of the National energy strategy and well guided action plan of means to reach these aims in the sectors of oil transportation, refining and products transportation is given in the Development plan.

Prepared and approved by the Ministry of Economy and the Ministry of Environment the Development plan shall become the background document to initiate investment projects of energy objects' of national importance – product and crude transportation pipelines – as well as to complete all territory planning, environmental assessment and technical design procedures.

Evaluating the need of the new infrastructure for crude and products shipment it is very important to consider the development of European and Russian energetic systems and Lithuanian economical needs.

In a geoenergetic aspect, Lithuania is situated in the transport and processing zone, since it both transports and processes oil produced in the oil production zone. The function performed by Lithuania to link the zones of production of energy resources and sales of energy resources not only strengthens Lithuania's energy security, but also increases the Lithuanian economic potential (taxes paid by Mažeikių nafta amount to approximately 7% of the whole budgetary income). The energy security of the states situated in the zones of transport and processing of energy resources depends on the added value created by these states in the process of transportation and processing of energy resources. The highest energy security can be ensured by those states which can refine oil, export oil products and transport oil from the production zone to the energy resource consumption zone; whereas the lowest energy security can be ensured by those states which can perform only one function – either transport or process energy resources. Lithuania, which performs both functions of oil transport and refinery, is especially sensitive to being dependent on one oil producing country - technical, economic and political conditions may result in failure to supply energy resources which would cause energy and – generally - economic damage to Lithuania. Therefore, Lithuania, similarly to other states which transport energy sources and refine oil, attempts to diversify the sources of energy resource production.

The major part of oil refined in Lithuania is imported from Eastern Europe countries as well as majority of oil products processed in Lithuania is exported to the West European countries; therefore the oil transport and refinery functions performed by Lithuania depend on energy trends in both - Eastern and Western Europe.

Recently, energy transportation routes in Eastern Europe have been actively modified by concentrating oil transportation and refining functions in local ports and on the own territory. Oil which was earlier transported via the ports of the Baltic States is now shipped via local ports, refuses to use economically and politically useless transportation routes and increases its oil refinery capacity. In other words, geoenergetic policy of such Eastern Europe countries can cause negative consequences not only with regard to the energetic link function performed by Lithuania, but also can cause damage to Lithuania as a user of energy resources.

The most important regulated energy sectors on the EU level are the electricity and gas sector. Less attention is paid to the oil sector; however, the oil sector is given especially much attention with respect to diversification of oil sources and oil transportation routes. The most important strategic EU energy policy documents – the European Commission Green Paper *A European Strategy for Sustainable, Competitive and Secure Energy* of March, 2006; a set of documents *Energy for a Changing World* published by the European Commission on 10 January 2007 and the European Council Action Plan for the period 2007-2009 *Energy Policy for Europe* adopted on 8-9 March 2007 – set the highest priority in the oil sector to diversification of oil supply external sources rather than to the oil pipeline links inside the EU.

The National Energy Strategy adopted by Lithuanian Seimas in Januray 2007 is the most important national document for the energy sector. Therefore, any oil transportation infrastructure development projects should arise out of the provisions of this Strategy. The National Energy Strategy first of all takes into account the EU energy policy and EU priorities, therefore, the provided oil sector overview is correspondingly limited, i.e. significance to the oil sector is mostly given in the extent it is given in the EU energy policy.

In 2005, oil and oil products amounted to approx. 30 percent in the primary energy resources balance of Lithuania. The said proportion has not been changed during the last years. The National Energy Strategy provides a forecast that oil products in total shall amount to 35 percent in the total primary energy resources balance in 2025. Moreover, the demand for oil

products at least up to 2015, i.e. up to the planned commissioning of a new nuclear power plant, should grow even more than after the shutdown of the Ignalina Nuclear Power Plant as gas will become the primary energy source at thermo-power plants, whereas oil will be used as standby fuel.

Therefore safe and reliable crude and product transport, refining, storage and retail infrastructure might secure operations of the National economy in general and energy sector in particular.

To achieve the environmental and quality standards established in the EU, as well to make operations of Mazeikiu Nafta refinery more cost effective the management of the company has approved an ambitious Value Creation Programme. The investment programme comprises internal modernisations of the refining processes, and development of crude and product infrastructure. An outline of the modernisations to be implemented at the refinery is provided below.

By 2012 it is planned to increase the factory's annual capacity up to approx. 11.0 mil tons of crude oil, whereas in 2005 the factory refined approx. 9.2 mil tons of crude.

Taking Europe's oil product consumption trends into consideration it is obvious that demand for diesel fuel is increasing. Therefore AB „Mažeikių nafta" takes steps to follow the trend. Major investments are directed to build a hydrocracking unit seeking to increase the output of high quality distillates (reaction fuel, diesel) and balance production of petrol.

KT-1/1 facility is also being reconstructed to enlarge it's capacities in vacuum distillate catalytic cracking and gas fractioning. A visbraking section will be upgraded and new vacuum flasher shall be built to achieve a deeper level of tar refining (remainder of visbreaking residue will be diminished by extra 20-25% acquiring the gas oil).

Seeking to distribute production in EU product quality must meet appropriate requirements given in Directives 93/12/EEB and 98/70/EB: higher quality products with compulsory certain amount of fuel components (fuel of biological origin which is produced form grain, potatoes, sawdust etc.) from renewing sources are required to be produced. For this purpose:

- MTBE facility is being reconstructed to be able to produce ETBE as well;

- Catalytic cracking gasoline hydrodesulphurization plant is being built to produce higher quality gasoline with less than 10 ppm sulphur amount;
- Methanol unloading and storage bar adaptation to receive ethanol;
- Storage capacities for MTBE, ETBE and other gasoline compounds to be built;
- Storage capacities for RME to be built;
- Sections of combined primary oil refining complexes LK-6U No.1 and LK-6U No.2 for dieseline and kerosene hydrocleaning (S-300/1) to be upgraded trying to produce dieseline with less than 10 ppm sulphur amount;
- Starting with 2005 EU decreased the acceptable amount of aroma hydrocarbons in gasoline from 42% to 35% and is about to decrease amount of alkenes from 18% to 10% in year 2009. A new planned alkilation plant will fit these requirements.
- Concentration of sulphur dioxide (SO_2) in the stacks must be cut to 1000 mg/Nm^3 according to EU Directive 96/61/EC. Sulphur recovery plant is to be upgraded, smoke is to be transported to flue gas treatment equipment, which is to be built in an Electricity power plant.
- To ensure lowering of sulphur amount in production a new hydrogen plant is needed.
- To ensure product delivery for local distributors and increasing of enterprise's economical flexibility a modern (following requirements of 94/63/EB Directive) terminal of light oil products was built.

Many other upgrades and new construction will take place in Mažeikių Nafta oil refinery: new propylene concentration plant, expansion of refinery's storage tanks, modernization of factory fuel combustion equipment,. During coming 5 years period AB Mažeikių Nafta plans to invest over 1,6 bln. USD (approx 4 bln. Litas) into the full modernization program. The modernized refinery will export up to 65 percent of total production, therefore the essential element of the modernization plan is the construction of product pipeline, allowing a cost effective, safe and reliable transportation of products to the sea terminal.

Summarizing the compatibility of the National Energy Strategy with the demand for construction of a new crude and product pipeline, it can be stated that the National Energy Strategy provides no goal for the development of oil and product pipelines. However, the

National Energy Strategy focuses not only upon the necessity of oil provision for internal consumption, but also emphasizes the goal to increase oil refining and export oil products. Taking this into consideration, building of a new crude and product pipeline would fully comply with the vision of the Lithuanian energy sector and general purposes of the National Energy Strategy: 1) the new crude pipeline would expand technical possibilities for export of oil products – in such a way the opportunities of Mažeikiu Nafta refinery to operate at the most cost efficient mode (11 million tons of crude processed per year) would be increased; 2) the product pipeline would increase transport safety of oil products meant for export (petrol, diesel) as well as reduce transportation costs and thus enhance the competitiveness of the Mažeikių Nafta products an external markets.

There are several possible routs for product shipping and crude oil transportation. Taking into account the assessment of all shipment options provided in the Development Plan and considering preliminary evaluation of territorial, technical and environmental aspects two possible routing options' scenarios of crude and product transportation are suggested for further consideration:

- Option 1 (scenario A as provided in the Development Plan). Product pipeline construction from Mažeikiai to Būtingė and expansion of Būtingė terminal to make it suitable for products storage and shipment.
- Option 2 (scenario D and G). Product pipeline construction from Mazeikiai to Butingė (Laukžemė) and further route to AB Klaipėdos Nafta along the railroad Skuodas-Kretinga-Klaipėda, considering crude and light oil product loading at AB Klaipėdos Nafta terminal.

The best option for both – crude and light oil product – transportation and loading can be chosen and selected only after environmental impact assessment and territory planning procedures are completed. When these procedures are finished pipelines of oil and oil products transportation and its construction and operation possibilities at chosen place will be confirmed legally.