LNG Terminal in Lithuania

Capacity Booking Market Consultation

December, 2013
SC „Klaipėdos nafta“

LNG TERMINAL

Dear potential user of the Liquefied Natural Gas terminal,

I proudly present the first LNG terminal in Lithuania and the Baltic states, the construction works of which are expected to end in December 2014. As you have may already known, the business model of the LNG terminal will allow third party access to its capacities – a concept which is already common in the natural gas sector of the European Union.

Before launching the official capacity booking procedure, we are willing to make a market consultation in order to better understand the future market demand for our regasification and small scale LNG reloading services.

This document is intended to provide you with technical details of the LNG terminal and expected gas quality specifications. At the end of this document you will find a list of information that we kindly ask you to provide – it will certainly help us to better understand future expectations of potential LNG terminal users and to become trustworthy partners in LNG business.

Yours truly,
Rokas Masiulis
General Manager
SC Klaipėdos Nafta

Project Background

Project goals

Implementing the National Energy Strategy, the main goals of the liquefied natural gas (hereinafter – LNG) terminal in Klaipėda are:

- to diversify energy supply import sources in Lithuania;
- to increase the national energy security;
- to spur competition by allowing third party access.

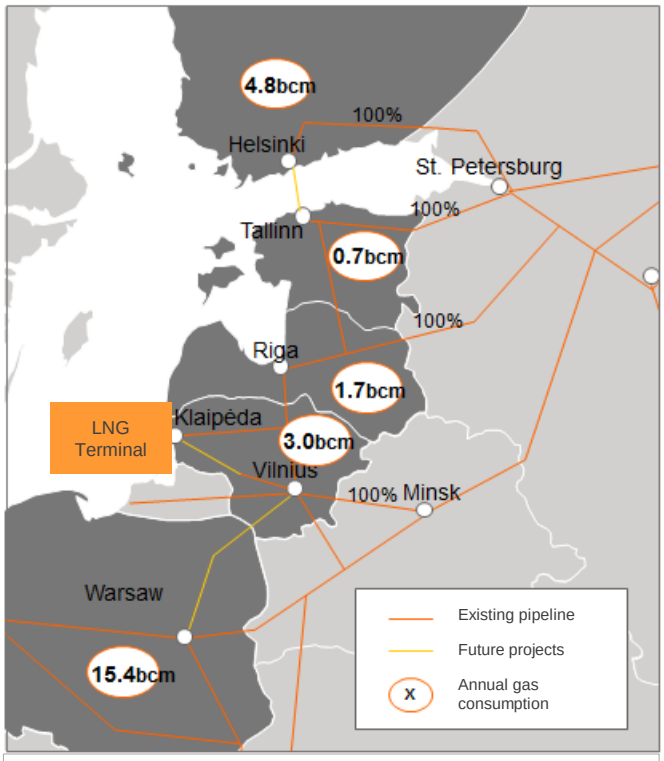
Technical Solution

- The LNG terminal is based on FSRU (Floating Storage and Regasification Unit) technology, which is provided by Höegh LNG as 10 year lease contract with a purchase option.
- The 450m long jetty is being built in the Curonian Lagoon at the southern part of an ice-free port of Klaipėda. The coordinates are: 55º 43' N; 21º 07' E.
- The LNG terminal will be connected to the network of the gas transmission system operator – SC Amber Grid – via 18km long pipeline, part of which goes under the Curonian Lagoon.

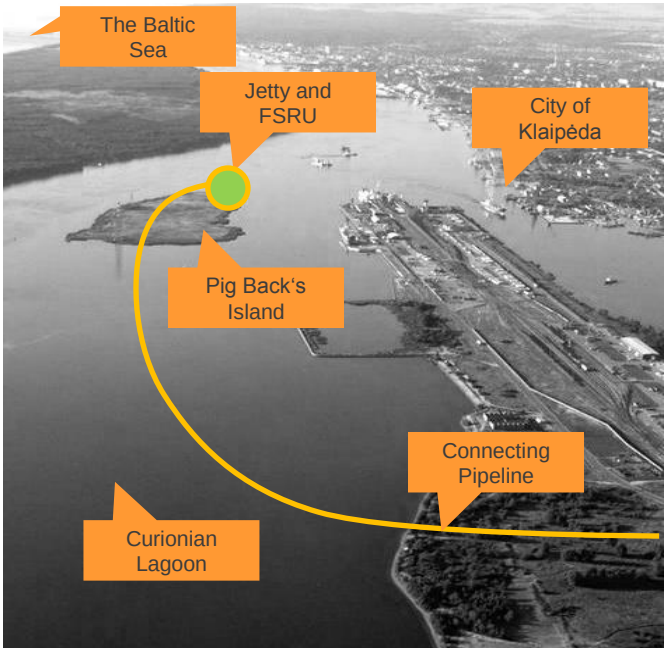
Key Milestones and Expected End of Construction

- The FSRU lease contract with Höegh LNG was signed in spring, 2012. The launch date of the FSRU called "Independence" from the shipyard in South Korea is in the first quarter of 2014.
- Main Engineering Procurement and Construction contracts were signed in the spring of 2013:
  - The contractor of the jetty is an experienced Latvia-based company AS BMGS and it is planned to finish constructions in the autumn of 2014;
  - The contractor of the connecting pipeline is a reputable Germany-based company PPS Pipeline Systems GmbH, which is expected to finish works in the second half of 2014.
- It is expected to end the construction of LNG terminal in December, 2014.
- The third party access capacity booking procedure is expected to commence in the first half of 2014.

Gas Infrastructure Projects in the Baltics



Its is expected that when the interconnections are completed, the LNG terminal would provide access to a gas market with a consumption of more than 25bcm annually.



Business Model and Services

LNG TERMINAL

Project development company – SC Klaipėdos Nafta

- Usual business of SC Klaipėdos Nafta includes transshipment of oil and oil products from oil tankers to oil rail tankers and road tankers (import and export).
- Annual revenue of SC Klaipėdos Nafta for the year 2011-2012 was around 40mln. EUR, with a net profit margin of ~30%.
- SC Klaipėdos Nafta was appointed to develop the LNG terminal Project in Lithuania by the Resolution of the Government (dated 2010-07-21, No. 1097).
- It is expected that SC Klaipėdos Nafta will become the operator of the LNG terminal.

Services

For its users the LNG terminal will provide capacity booking services which will give the users access to:

- berthing right (port fees apply, please check www.portofklaipeda.lt);
- loading of LNG into the LNG terminal;
- temporary storage of LNG until it is regasified or reloaded into small scale LNG vessel;
- regasification; and/or
- reloading the LNG into a small scale LNG vessel.

Service offering

The first full scale terminal in the Baltics and Nordic countries expected to be in operation from the end of the next year

Operational all-year round at an ice-free port**

Infrastructure for small-scale LNG activities

Third party access will ensure competition on national and, possibly, on regional level

More than 40 years of safe and efficient oil terminal operational experience

40 years

Main features of the business model

Primary market

Third party access to the capacities of the LNG terminal will be provided via open and transparent capacity allocation procedure.

Capacity allocation

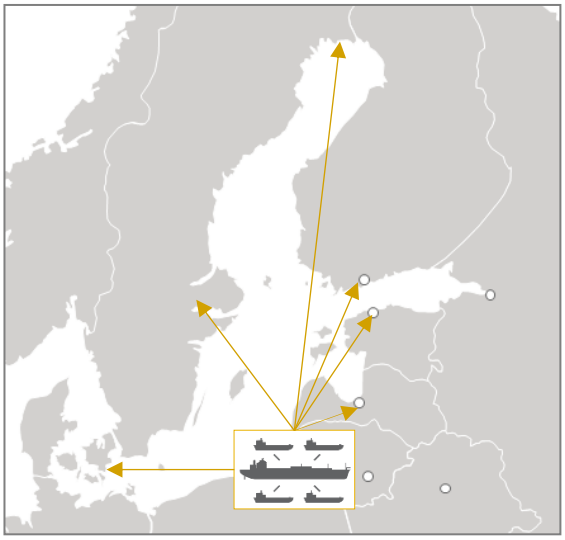
Capacities of the LNG terminal will be available for long term and short term duration. During the capacity allocation the priority will be given for the demand of regasification services.

Secondary market

The users of the LNG terminal will be able to lend their LNG and trade their booked capacities in the secondary market.

LNG carriers arrival schedule

The LNG carriers arrival schedule shall be coordinated with the above mentioned services and commonly agreed by the users with a priority for regasification services.



*http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=460127&p_tr2=2

**As indicated by the Klaipėda state seaport authority.

Regulation, Transmission and Port Infrastructure

Regulatory environment

- The gas market in Lithuania is regulated by the National Control Commission for Prices and Energy (NCC). The main documents, governing the LNG terminal are:
- the Law on Natural Gas (adopted 2000-10-10, No VIII 1973);
- the Law on LNG terminal (adopted 2012-06-12, No XI-2053 and amended on 2013-06-27 No XI-2053) – the excerpts of the unofficial translation can be found on Annex 3;
- the Methodology of Fixing State-regulated Prices in the Natural Gas Sector (adopted by the NCC on 2013-09-13, No O3-367) – the excerpts of the unofficial translation can be found on Annex 3;
- SC Klaipėdos Nafta received the right to perform capacity allocation procedures and other certain rights of the LNG terminal operator by the Resolution of the Government (dated 2013-11-13, No 1049).

Development of gas transmission system

- The gas transmission system in Lithuania is operated by an unbundled operator – SC Amber Grid.
- It is expected that in the beginning of 2015 the gas market entry-exit model will be applied with and entry point at the end of connecting pipeline from the LNG terminal where a gas metering station is being constructed.
- The transmission system leading to the entry point is being upgraded (Klaipėda-Kuršėnai link).
- Below are the main technical specifications of the expected upgrade.

The expected schedule for Klaipėda-Kuršėnai link upgrade		
	Current	*2016*
Diameter	400mm	800mm
Send out capacity (Nm^3/h)	178.000	460.000
Pressure (max. bar)	47	54

Data at +20 °C
For more information on the gas transmission system please visit www.ambergrid.lt

Charges for regasification services

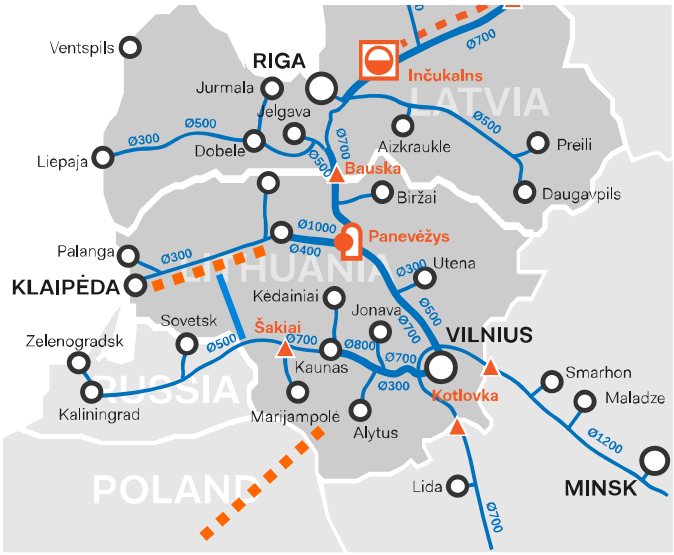
Regasification tariff

- Covers only variable expenses associated with regasification services.
- Collected from the users of the LNG terminal performing regasification.

The fixed costs of the LNG terminal are covered through Security supplement to the gas transmission tariff and are covered by the end users of the gas transmission system.

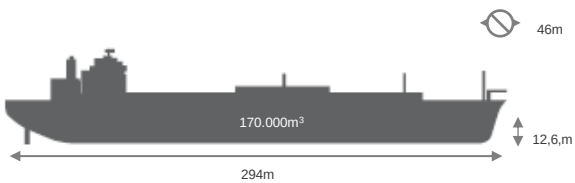
Infrastructure of the Port of Klaipėda

- In order to have the necessary depth of the port channel required by the FSRU and the expected LNG carriers, dredging works were commenced and finished in the summer of 2013.
- The pilots of the port already have finished training for the mooring of the LNG carriers.
- Before the berthing of the FSRU the maintenance dredging works will take place in the FSRU pit.



Technical Specifications

Description of the LNG Terminal



- The FSRU Class is Det Norske Veritas (DNV), constructed by Hyundai Heavy Industries: +1A1, Tanker for Liquefied Gas, Ship type 2G (-163˚ C, 500 kg/m3, 70 kPa).

Quality Specifications of LNG

- Gas quality specification taken to the LNG terminal shall meet requirements set by order No. 1-194 dated October 4, 2013 issued by Energy Minister of the Republic of Lithuania.
- The user will have to provide to the operator of the LNG terminal the information regarding physical properties of the LNG, such as Wobbe index, gross calorific value, density (at loading and delivery). More detailed requirements are provided in Annex 2.

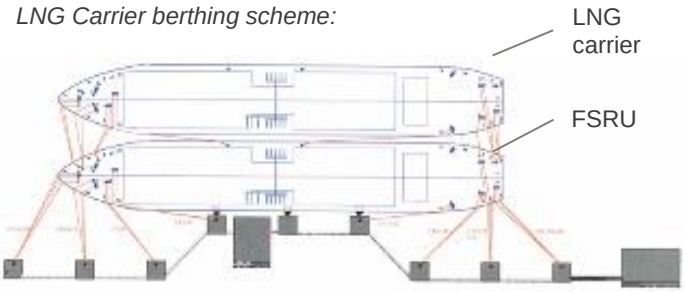
Berthing at the LNG Terminal

The LNG carrier will berth at the side of FSRU as indicated in the scheme, presented below.

The Terminal is designed to provide a safe mooring for LNG carrier satisfying the following size limitations:

- maximum arrival displacement – 170.000 m^3;
- maximum length overall – approx. 300 meters;
- maximum breadth – approx. 50 meters;
- maximum loaded draft – 12,5 meters.

LNG Carrier berthing scheme:



LNG Regasification System	
Maximum Natural Gas capacity	460.000 Nm^3/h
Nominal Natural Gas capacity	230.000 Nm^3/h
Minimum Natural Gas capacity	61.300 Nm^3/h
NG design outlet pressure	60 bar g (FSRU export flange)
Maximum LNG loading capacity	9.000 m3 LNG/h via flexible hoses
Cargo manifolds on port and starboard	(L-L-V-L-L)
Liquid connection	4x16'' ANSI 150 RF type
Vapor connection	1x16" ANSI 150 RF type

Note: all data at +20ºC

LNG Temporary Storage System	
Cargo tank No. 1	26.510 m^3
Cargo tanks No. 2,3,4	47.830 m^3 each
Total storage capacity of all tanks:	170.000 m^3
LNG filing limit at 70kPag	98%
Minimum temperature acceptable in tanks	-163 ºC

Market Consultation and Next Steps

Information for market consultation

In order to better understand the market demand for regasification and small scale LNG reloading services, SC Klaipėdos Nafta is inviting all potential market players to express their willingness to use services of the LNG terminal and to provide following information in a free form:

- brief introduction of the company;
- experience and activity prospects on natural gas and/or LNG market; and

according to a Form of Interest in Services provided in Annex 1 to indicate:

- annual volume of intended use of regasification capacity of the LNG terminal and potential service booking period;
- annual volume of intended use of small scale LNG reloading services and potential service booking period;
- estimated number of times of LNG loading and reloading from FSRU per year as well as expected sizes of LNG carriers to be loaded.

Market consultation

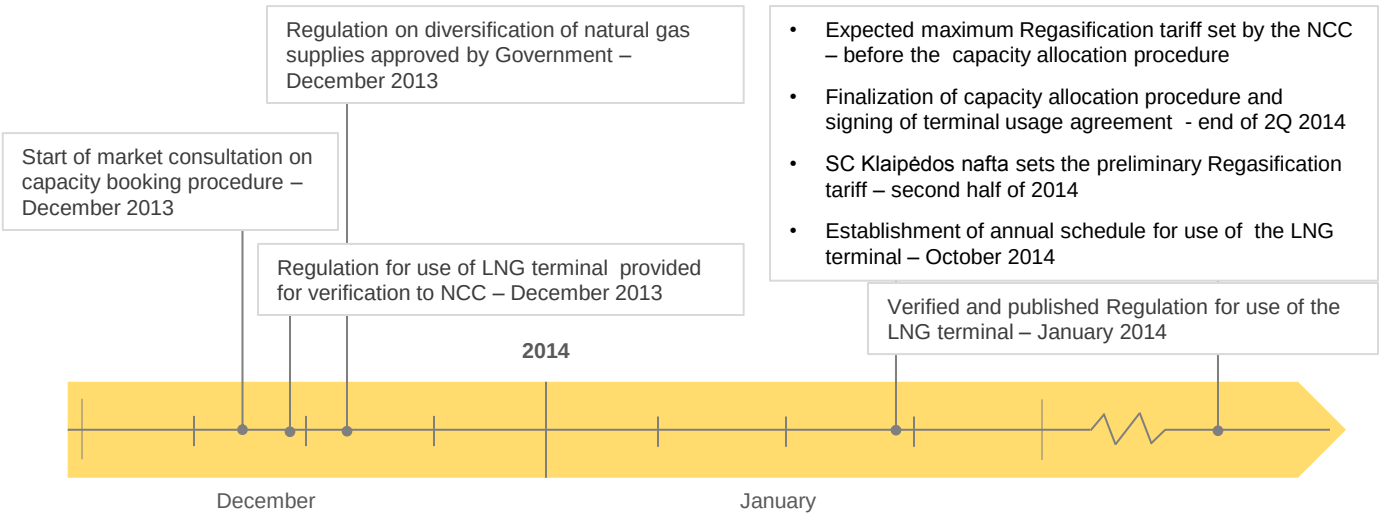
Possible adjustments to the LNG terminal infrastructure and regulation

Start of the official capacity booking procedure

Also, if you may wish so, please inform us about your expectations on the capacity allocation procedures, secondary market regulation and other LNG terminal activity matters that you believe may be important to include in the future. Only generalized data collected during market consultation procedure may be published.

Below, please find the indication of the timeframe of main activities and results which are associated with the capacity booking procedures of the LNG terminal.

Expected next steps



We will keep you informed about the progress of above presented steps.
The information will also be available at www.sgd.lt, www.regula.lt

Annex 1: Form of Interest in Services

Please provide the requested information in the following form:

Company Information	
Company Name	
Address	
Corporate ID Number	
Contact Details	
Contact Person	
Title	
Phone Number	
Fax Number	
E-mail Address	

Indication of Annual Required Capacity					
	2015	2016	2017	2018	<……>
Annual regasification capacity (LNG m^3)/booking period					
Annual small scale LNG reloading volume (LNG m^3)/booking period					
Estimated number of reloaded cargoes per year					
Expected sizes of LNG carriers					

Annex 2: Detailed Gas Specification

Gas parameter	Limit values			
Reference temperatures (combustion/measurement) ° C	25 / 0		25 / 20	
	min	max	min	max
Net calorific value, kWh/m3	9,49	11,00	8,83	10,25
Gross calorific value, kWh/m3	10,40	12,21	9,68	11,37
Superior Wobbe index Hs, kWh/m3	14,02	15,51	13,06	14,44

	Index	Value
1.	Methane CH4, % mol	≥ 91,5
2.	Ethane C2H6 , % mol	≤ 7
3.	Propane C3H8, % mol	≤ 3
4.	Sum of ethane and propane C2H6 + C3H8, % mol	≤ 8
5.	Sum of butane and higher hydrocarbons C4H10+: – When propane C3H8 concentration is ≤ 2 % mol – When propane C3H8 concentration is > 2 % mol	 ≤ 1 ≤ 0,75
6.	Nitrogen, N2, % mol	≤ 5
7.	Carbon dioxide, CO2, % mol	≤ 2,5
8.	Oxygen, O2, % mol	≤ 0,02
9.	Methane number	≥ 80
10.	Relative density	0,55-0,62
11.	Hydrogen sulphur, H2S, g/m3	≤ 0,007
12.	Mercaptan sulphur, g/m3	≤ 0,016
13.	Total sulphur, g/m3	< 0,03
14.	Mechanical impurities, g/m3	≤ 0,001
15.	Water dew point temperature, ° C (4 MPa)	< -10
16.	Hydrocarbons dew point temperature ° C (2,5-7,5 MPa)	< -2

Law on LNG Terminal

/Beginning of the translated excerpt from the Law on LNG Terminal/

Section Two
Implementation and Financing of the Project

Article 3. Decision on the LNG Terminal
1. The LNG Terminal and the natural gas infrastructure securing its efficient operations shall be constructed in the Republic of Lithuania. The LNG Terminal shall be constructed in the territory of the Klaipėda State Seaport.
2. The LNG Terminal and the LNG Terminal Connection are acknowledged as facilities of strategic importance for national security; the LNG Terminal Operator is acknowledged as a company of strategic importance for national security as stated in Law on Companies and Installations having Strategic Importance for National Security and on Other Companies Relevant to National Security of the Republic of Lithuania.
3. Under this Law the project on the liquefied natural gas terminal (hereinafter – the Project) is acknowledged as the project of specific national economic importance to be implemented following the Law on Taking of Land for Public Needs for Implementation of Projects of Specific National Importance of the Republic of Lithuania (hereinafter – the Law on Taking of Land for Public Needs for Implementation of Projects of Specific National Importance), except for the requirement to submit a feasibility study of the project established in Paragraph 2 of Article 3 of that law.

Article 4. Implementation of the Project
1. Following the decision of the Government or an institution authorised by it the Project shall be implemented by the project development company (hereinafter – the Company), in which the State controls not less than 2/3 of the voting rights at the general meeting of shareholders of such company.
2. The Company shall carry out the works of development and construction of the LNG Terminal Infrastructure or shall cause such works to be carried out till the connection of the LNG Terminal to the natural gas transmission system and putting the LNG Terminal into operation according to the procedure established by legal acts.
3. The Company, planning to become the LNG Terminal Operator, shall receive the licence for liquefaction of the natural gas in accordance with the procedure laid down in the Law on Natural Gas.
4. The Ministry of Energy of the Republic of Lithuania shall be responsible within its competence for supervision of the implementation of the Project. The process of implementation of the Project shall be assessed by the interdepartmental commission formed under the Governmental decision, which shall monitor the process of the implementation of the Project, evaluate information related to the implementation of the Project and, when necessary, submit proposals to the Government on the action plan of the Project, administrative procedures for the implementation of the Project and/or other issues related to the implementation of the Project. Internal regulations and members of the interdepartmental commission shall be approved by the Government.

Article 5. Financing of the Project
1. The development and construction of the LNG Terminal Infrastructure shall be financed by the Company's own funds and/or borrowed funds.
2. Installation and operating costs of the LNG terminal, its infrastructure and connection may be fully or partially included into the natural gas transmission service price in accordance with the terms and conditions set by the National Control Commission for Prices and Energy (hereinafter – the Commission), following the price regulation requirements established by the Law on Energy, the Law on Natural Gas and other legal acts. Costs constituting the natural gas transmission service price and revenues shall be administered and compensated to the LNG Terminal Operator by the transmission system operator for natural gas (hereinafter – the TSO) in accordance with the order set by the Commission.
3. European Union assistance funds and any other lawful receipts can be used for the financing of the Project. Project financing securities (state guarantee, surety, property mortgage etc.) can be used according to the procedure prescribed by laws. Decision on provision of a state guarantee to a loan for the financing of the Project shall be adopted according to the provisions of the Law on Public Debt of the Republic of Lithuania.

Article 6. Adoption of Decisions
1. State and local authorities, companies, institutions and organizations adopting decisions related to the implementation of the Project, shall collaborate among themselves and with the Company, exchange required information and ensure timely adoption of decisions relating to entitlement to the Company and/or other persons to carry out designing, development, construction and other works of the LNG Terminal Infrastructure. Decisions related to implementation of the Project shall be adopted within the shortest time possible.
2. State Enterprise Klaipėda State Seaport Authority shall collaborate with the Company, following the procedures established by legal acts, in selecting a site for the construction of the LNG Terminal.
3. The Company shall be empowered to use the territory of the Klaipėda State Seaport, required for the construction and operation of the LNG Terminal, on the basis of an agreement with the Klaipėda State Seaport Authority in accordance with order and conditions established by legal acts.

/Ending of the translated excerpt from the Law on LNG Terminal/

Methodology of Fixing State-regulated Prices in the Natural Gas Sector

Key aspects of the Methodology, applicable for the Project

The Methodology, inter alia, provides for the pricing of services of an entity in natural gas liquefying business, which establishes the calculation of an additional natural gas supply safety component in addition to the upper limit of the natural gas transmission price (hereinafter – the Safety Component) and the calculation of the natural gas liquefying service prices (hereinafter – the Regasification tariff).

The need for funds for the construction of the LNG Terminal is established after taking into account the financial resources necessary for the implementation of the Project and evaluating the presented documents, which prove that the company implementing the Project (i.e. Klaipėdos Nafta) does not have a possibility to make use of other possible project financing sources or other means that can ensure financing of the Project.

The Methodology states that the revenue from the LNG terminal consists from three partitions:

revenue from fixed cost compensation includes all the fixed costs of the LNG Terminal, its infrastructure and connection that are necessary to ensure the operation of the LNG Terminal (such costs include lease payments for the FSRU, lease payments for the Jetty etc.);
revenue from return on investment into Regulated Asset Base (hereinafter – RAB), which includes installation costs of the LNG Terminal, its infrastructure and connection to the gas transmission system and is the carrying value of these assets;
revenue from Regasification tariff.

According to the Law on LNG Terminal, the revenue from fixed cost compensation and the revenue from return on investment into RAB (items 1-2 above) shall be included into the Safety Component. The Safety Component shall be collected, administered and disbursed to Klaipėdos Nafta by the transmission system operator for natural gas (hereinafter – the TSO) under the terms and conditions set by the Commission.

According to the Methodology, the Security supplement (Dp, rib) is calculated using the below mentioned formula:

$$D_{p,rib} = \frac{S_{SGDT} + ROI_d + S_{SGDT}^{ADM}}{Q_p};$$

here:
S_{SGDT} – fixed annual cost of the LNG Terminal, its infrastructure and connection which are calculated using the following formula:
$S_{SGDT} = C_{DA}+C_M+C_P+C_T+C_A+C_S+C_O+C_{NS}$, thousand LTL,
here:
C_{DA} – depreciation (amortization) costs,
C_M – maintenance, repairs, technical supervision and operational costs,
C_P – staff costs,
C_T – tax costs,
C_A – administrative costs,
C_S – marketing and sales costs,
C_O – other fixed costs,

C_{NS} – costs of the LNG Terminal, which are expected based on long term agreements: FSRU lease payments, FSRU operational costs, FSRU lease guarantee costs, lease of the jetty and other costs related to regasification activity and based on the long term agreements evaluating the forecast of the relevant currency ratio;
ROI_d – return on investments into the LNG Terminal's infrastructure part (except for investments financed under various EU or other grants or subsidies) (i.e. RAB), RAB*WACC, which is set by the Commission);
$S^{ADM}_{SGDT,t+1}$ – forecast for expected tariff administrational expenses for the calendar year.
Q_p – expected quantity of natural gas transmitted through gas transmission pipes, thousand m^3

According to the Time Charter Party Charter concluded by and between Klaipėdos Nafta and Hoegh LNG Limited (hereinafter – Hoegh) dated 2 March 2012 (hereinafter – the TCP) as of expiry of the TCP, Klaipėdos Nafta has an option (a right but not an obligation) to purchase the FSRU. According to the Methodology, if pursuant to the TCP FSRU is leased (not owned) by Klaipėdos Nafta, the value of FSRU is not included in the RAB. During the lease period of FSRU Klaipėdos Nafta shall receive the compensation of the FSRU's lease payments, as indicated in the above mentioned formula of $D_{p.rib}$.

The abovementioned Regasification tariff is calculated in the following formula:

$$T_{s,rib} = \frac{S_{s,k,b}}{Q_{s,b}}$$

Here:
$T_{s,rib}$ – upper bound of regasification tariff, LTL/thousand. m^3;
$S_{s,k,b}$ –base variable costs of regasification service set according to technical specifications of the LNG terminal and according to long-term agreements.

LNG TERMINAL

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