

Национальный технический университет Украины
«Киевский политехнический институт» им. Игоря Сикорского
Белорусский национальный технический университет (г. Минск, Белоруссия)
Высшая экономико-гуманитарная школа (г. Бельско-Бяла, Польша)
Государственное учреждение «Институт экономики и прогнозирования НАН Украины»
Института высоких технологий и устойчивого развития Казахского Национального
технического университета им К.И. Сатпаева (Казахстан)
Национальный военный университет «Васил Левски» (г. Велико Тырново, Болгария)
Национальный институт стратегических исследований и Региональный филиал
Национального института стратегических исследований в г. Днепропетровске (Украина)
Нижегородский инженерно-экономический университет (Россия)
Одесский национальный экономический университет (Украина)
Рижский технический университет (Латвия)
Сумской государственный университет (Украина)
ПАО «Украинский нефтегазовый институт» (г. Киев)
ПВУЗ «Международный университет финансов» (г. Киев, Украина)

ЭКОНОМИЧЕСКАЯ БЕЗОПАСНОСТЬ ГОСУДАРСТВА И НАУЧНО-ТЕХНОЛОГИЧЕСКИЕ АСПЕКТЫ ЕЕ ОБЕСПЕЧЕНИЯ

(Нединские чтения)

Труды

VIII научно-практического семинара с международным участием

21-22 октября 2016 года

Киев

УДК 330.46:338.2:66.012:658.567.1: 621.316:3519.8:004.94:
ББК 65.050.2(2Рос)
Е45

Рекомендовано до друку вченою радою теплоенергетичного факультету Національного технічного університету України «Київський політехнічний інститут» ім. Ігоря Сікорського (протокол № 2 від 26 вересня 2016 року)

Рецензенти:

Н. Б. Савіна – доктор економічних наук, професор Національного університету водного господарства та природокористування; *Є. В. Хлобистов* – доктор економічних наук, професор Державної установи «Інститут економіки природокористування та сталого розвитку НАН України», Вищої економіко-гуманітарної школи (м. Бельсько-Бяла, Польща); *О. О. Акульшин* – доктор технічних наук, доцент, заступник Голови Правління ПАТ "Український нафтогазовий інститут"; *В. Г. Писаренко* – доктор фізико-математичних наук, професор Інституту кібернетики ім. В.М. Глушкова НАН України.

Економічна безпека держави і науково-технологічні аспекти її забезпечення : зб. наук. праць за матеріалами міжнар. наук.-практ. семін., 21-22 жовт. 2016 р., Київ / наук. ред. С. О. Лук'яненко, Г. В. Крамарев. – К. : «МП Леся», 2016. — 298 с.

Экономическая безопасность государства и научно-технологические аспекты ее обеспечения : сб. науч. трудов по материалам междунар. науч.-практ. семин., 21-22 окт. 2016 г., Киев / наук. ред. С. А. Лукьяненко, Г. В. Крамарев. – К. : «МП Леся», 2016. — 298 с.

ISBN 978-966-7166-38-0

Збірник містить праці за такими тематичними напрямками: науково-методичні аспекти та інструментарій забезпечення складових економічної безпеки суб'єктів господарювання; енергетика як стратегічний напрям політики забезпечення економічної безпеки держави; застосування інформаційних технологій у вирішенні прикладних задач економічної безпеки.

Сборник содержит работы по следующим тематическим направлениям: научно-методические аспекты и инструментарий обеспечения составляющих экономической безопасности субъектов хозяйствования; энергетика как стратегическое направление политики обеспечения экономической безопасности государства; применение информационных технологий в решении прикладных задач экономической безопасности.

Доповіді друкуються в авторській редакції.

ISBN 978-966-7166-38-0

© Авторські тексти, 2016
© Національний технічний університет України «КПІ»
ім. Ігоря Сікорського, 2016

2.4. ON SOME SECURITY ASPECT OF GAS MARKETS IN THE LATVIA

*Ketners K.K., Dr.oec, Riga Technical University
(Кетнер Карл Карлович : доктор экономики , профессор,
заместитель государственного секретаря по вопросам
стратегического развития и управления ресурсами Министерства
здравоохранения Латвии.*

*Brīvības iela 72 (ул Свободы ,72) , Rīga, LV-1011, Latvia, phone
+37167876003, mob. phone +37129437496, karlis.ketners@vm.gov.lv ,
www.vm.gov.lv)*

Mahnitko A.Y., Dr.sc.ing, Riga Technical University

Introduction. For the last two decades, policy makers in Washington and Brussels have devoted significant attention to the topic of European energy security. Policy attention has been especially intensified in response to the three natural gas supply crises related to Ukraine (2006, 2009, and 2014). In addition, European policy debates on its relations with its main suppliers have increased in light of the 2015 decision of the European Commission (“EC”) to send a statement notifying Gazprom of its objections to alleged

market abuse as part of the EC's ongoing investigation⁵⁴.

The European natural gas market is in the middle of a deep structural change that comprises both, restructuring and vertical unbundling, as well as changing supply relations. Contrary to the reform process in the U.S., restructuring in continental Europe has only started seriously with the second European Gas Directive (2003/55/EC, so-called "Acceleration Directive") whereas the UK had started the reform of its natural gas sector in the early 1990s already. In continental Europe, a small number of players still dominate the national wholesale markets; vertical unbundling is pursued by most member states, though with varying degrees of success. The individual countries are poorly interconnected, and the limited access to pipeline capacity prevents liquid hubs from emerging⁵⁵. The Baltic States (Estonia, Latvia and Lithuania) are small energy economies and gas markets for less than 1.5% of EU gas consumption, however Baltic States import all the gas they consume from a single source, Russia.

Analysis of recent researches and publications. Having difficult political relationships with that country⁵⁶ the Baltic States live with an acute sense of energy insecurity. Recently developed numerical indicators of gas supply security show the Baltic States to be amongst the least secure of EU member states⁵⁷. "Energy supply security" is a particularly sensitive issue in European gas market, in particular with a view to the dominant supplier, Russia. Several models have indicated that market power is indeed an issue in the European natural gas market, amongst them Boots⁵⁸; Egging&Gabriel⁵⁹ summarized and discussed the papers that develop strategic models of European gas supply.

Results and discussions. Since 2009 European Commission is pushing for a single regional Liquefied Natural Gas (LNG) terminal as the preferred policy solution for energy security in Baltic. Another aspect of energy policy

⁵⁴ Shaffer, B. Europe's Natural Gas Security Of Supply: Policy Tools For Single-Supplied States. *Energy Law Journal*, 2015, 36: 179-409.

⁵⁵ Holz, F., von Hirschhausen C., Kemfert C. 2008. Perspectives of the European Natural Gas Markets until 2025, Berlin: DIW Berlin German Institute for Economic Research. [on - line]. Available from Internet: <http://tu-dresden.de/die_tu_dresden/fakultaeten/vkw/iad/die_tu_dresden/fakultaeten/fakultaet_wirtschaftswissenschaften/bwl/ee2/lehrstuhlseiten/ordner_publicationen/publications/wp_rm_08.pdf>

⁵⁶ Aalto, P., Dusseault, D., Kennedy, M. D., & Kivinen, M. Russia's energy relations in Europe and the Far East: towards a social structurationist approach to energy policy formation. *Journal of International Relations and Development*, 2013.; doi:10.1057/jird.2012.29.

⁵⁷ Findlater S., Noël P. Gas supply security in the Baltic States: a qualitative assessment. *International Journal of Energy Sector Management*. Volume 4 Iss: 2, 2010, pp. 236 – 255. doi:10.1108/17506221011058713

⁵⁸ Boots, M. G., Fieke A.M. R., Hobbs B.F., 2004. Trading in the ownstream European Gas Market: A Successive Oligopoly Approach. *Energy Journal*, (Volume 25, No. 3, pp.73-102.). doi:10.5547/ISSN0195-6574-EJ-Vol25-No3-5

⁵⁹ Egging, R., Gabriel, S. A., Holz, F. A complementarity model for the European natural gas market, *Energy Policy*, Volume 36, Issue 7, July 2008, pp. 2385–2414

is the diversity of regulatory frameworks, liberalization and unbundling issues are creating the main barriers preventing Baltic countries to become fully incorporated into the common European gas grid as provided for by the Third Energy Package (Directive 2009/72/EC; Directive 2009/73/EC; Regulation (EC) No 713/2009; Regulation (EC) No 714/2009; Regulation (EC) No 715/2009).

Also an important role is for supply structures, since Europe is a relatively mature pipeline market, with a significant increase in Liquefied Natural Gas regasification capacity and imports over the last years. The demand for natural gas is generally expected to rise, though with some uncertainty on the future developments that may reduce the relative benefit of gas in environmental or cost terms and the dominant trend towards shorter-term trading and more important role for spot gas markets. Russia's important position is mainly due to the large volumes exported to some West European countries (Germany, Italy) and especially the strong dependence of Central and Eastern Europe on Russian natural gas supplies⁶⁰. Also all Eastern European countries have dependency rates on Russia of above 50 % (e.g., Czech Republic and Hungary for 75 %, Poland for 67 % of their imports); several rely on Russia for all of their natural gas imports today (Bulgaria, Baltic countries, Slovakia). The Baltic States have no interconnections to the common European gas grid and can be characterized as the energy island.



Fig.1. The Baltic States natural gas map

In all three countries currently natural gas imports are carried out only based on the long-term take-or-pay oil indexed contracts. Role that natural gas is playing in each of these countries largely varies⁶¹. Since natural gas in all three countries is largely used for heat production summer and winter

⁶⁰ See also Boussena, S., Locatelli, C. Energy institutional and organizational changes in EU and Russia: Revisiting gas relations. Energy Policy, Volume 55, April 2013, pp. 180–189)

⁶¹ Eurogas Statistical Report 2014

consumption varies few times. Latvian natural gas supply system is not connected to the EU's common natural gas supply system. Latvia receives natural gas from Russia only, but, along with the launch of operations of the Klaipeda LNG terminal at the beginning of 2015, Latvia has access to gas supply of limited volume from Lithuania. The only natural gas field in the Baltic region is located in Latvia – Incukalns Underground Gas Storage Facility (UGSF) with the total volume of 4.3 billion m³, including the active natural gas volume of 2.3 billion m³. In 2014, total consumption of natural gas reached 1,313 million m³, which is by 10.1% less than in 2013. The major consumers of natural gas in 2014 were the CHPs of Latvenergo AS and heating companies – 66.7%, industry and construction – 11%, other users – 19.1%, and the rest is constituted by the consumption of natural gas in the energy sector and losses. Approximately 65% of the natural gas used in Latvia is consumed in Riga region.

Wholesale prices of natural gas in the Baltic States are higher than the EU average. At the same time, it should be noted that the retail prices for households and industrial consumers in the Baltic States are close to the EU average. This is determined by several factors, such as infrastructure costs, including storage capacity and transmission tariffs, as well as tax policy. Since Incukalns UGSF is a significant component of the natural gas supply system of the Baltic region, which ensures natural gas supply not only to Latvia, but also to Estonia and Russia, as well as serves as a safety backup element for the region, it is planned to implement the project Modernization and Expansion of Incukalns UGSF.

The project aims to raise the level of security of energy supply in the Baltic Sea region, as well as to facilitate diversification of energy supply routes and sources after the completion of the GIPL and Estonia-Finland interconnections. The estimated costs of the project – 191 million euro for modernization, 360 million euro for expansion. The first stage of the project Modernization and Expansion of Incukalns UGSF provides for increasing the natural gas discharge capacity. At the moment, 30 million cubic meters of natural gas can be discharged from the storage per day. It is planned that the natural gas discharge capacity will be 32 million cubic meters per day in 2020. In situations where the demand for natural gas is higher than usual, for example, due to climatic conditions or disruption in natural gas supplies from third countries, Incukalns UGSF will be able to ensure the required volumes not only in Latvia, but also in Lithuania and Estonia.

In order to strengthen the security of natural gas supply in the EU, the Regulation (EU) No 994/2010 of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC of the European Parliament and of the Council (Regulation 994/2010) was

adopted. Among other things, the Regulation 994/2010 imposes an obligation on the competent authority of the Member States (in case of Latvia – the Ministry of Economics) to develop the Preventive Action Plan and the Emergency Action Plan. Established Latvian Preventive Action Plan contains measures to remove or mitigate the risks identified in the risk assessment of the security of natural gas supply in Latvia in the field of both natural gas supply (investments in infrastructure, use of long-term contracts, planning actions in case of an emergency) and the demand (use of interruptible contracts, replacing fuel), preventive measures in relation to the need to improve interconnections between neighboring member states and possibility to diversify gas channels and supply sources. The Emergency Action Plan contains the measures to be taken to eliminate or mitigate the impact of a gas supply disruption if it cannot be removed by the measures specified in the Preventive Action Plan, and the energy suppliers alone can no longer properly respond to gas supply disruptions. The Emergency Action Plan defines the role and responsibilities of natural gas undertakings and of electricity producers; competent authorities and other structures to which tasks, role and responsibilities have been delegated at each of the crisis levels; procedures and measures to be taken concerning each crisis level, persons responsible for risk management and their roles, measure to be implemented to eliminate an alert level situation and mitigate an emergency level situation, reporting obligations imposed on natural gas undertakings, ensuring access to gas supply in an emergency situation, as well as mechanisms used in cooperation with other Member States.

The entire East Baltic area was covered by derogations under the 2nd Gas Directive 2003/55/EC. The 3rd Energy Package provides for derogations (qualifying as an isolated market) for Latvia and Estonia but not for Lithuania because Lithuania opted not to apply for derogation. According to the Article 49(1) (subparagraph 3) of Gas Directive 2009/73/EC, the derogations for Estonia and Latvia fall once they are "directly connected to the interconnected system of any Member State other than Estonia, Latvia, Lithuania and Finland." Consequently in case the above infrastructure priorities are met, these Member States will have to apply the provisions of the 3rd Energy Package, including the provision to establish national entry-exit regimes and to implement effective unbundling in their gas networks.

In Estonia there is one single transmission and distribution gas network operator, namely AS EG Vorguteenus, which belongs to the gas trader AS Eesti Gaas. At present, it is only legally unbundled, but the Estonian Parliament recently has adopted the Gas Law, which requires ownership unbundling to be implemented by 2015 despite a derogation from the unbundling rules. Estonia has chosen the way of gas market liberalization in

order to increase energy security, security of supply and competition. By the amendments introduced in the Natural Gas Act on 6 June 2012 the Parliament made a decision not to apply the exemption provided by the Directive 2009/73/EC in the future and choose the way of complete ownership unbundling for the adoption of the Directive. Pursuant to the Natural Gas Act by 1 January 2015 at the latest the system operator shall be a network operator that owns the transmission network, possesses or administers the metering systems on the border and has an activity license for providing of the transmission service of gas.

In Latvia a/s *Latvijas Gaze* performs natural gas transmission, storage, distribution and sales. Latvia has an explicit derogation from the Gas Directive exempting it from unbundling rules (Article 49). On 30 of June 2005 Latvian Parliament (Saeima) adopted the Law on Coming into Effect Several Clauses of the Energy Law providing for application of clauses concerning unbundling and gas market opening from April 4, 2014.

Law *Amendments to the Energy Law* was adopted at the Saeima on 20 March 2014, which provides for a gradual liberalisation of the market, establishing that, as of 4 April 2014, operators of the natural gas transmission, distribution, storage, and LNG systems have to provide all users of the system and applicants, who request it, with equal and open access to the respective system, providing them with services of natural gas transmission, distribution, storage, or liquefied natural gas services.

In 10 September 2015, the Council of the Public Utilities Regulatory Commission approved the terms of use of the natural gas infrastructure – Terms of Use of the Natural Gas Transmission System of Joint-Stock Company “*Latvijas Gaze*” and Terms of Use of *Incukalns* Underground Gas Storage Facility of Joint-Stock Company “*Latvijas Gaze*”. In future, the use of the natural gas transmission system and underground gas storage facility and allocation of spare will be transparent, open and will operate under equal terms. Till now, third party access was based on a bilateral agreement with *Latvijas Gaze AS*.

The said terms prescribe the provisions of using the natural gas infrastructure, the procedure for granting the rights to use the spare capacity of the transmission system and *Incukalns* underground gas storage facility, cases when the infrastructure operator is allowed to suspend or limit the usage of the transmission system and the storage facility, rights and obligations of the operator and the users of the transmission system, payment procedure and balancing procedure of the natural gas entered into the system and discharged from the system.

According to the terms, information about the spare capacity of the transmission system and *Incukalns* underground gas storage facility available

on the market is publicly available on the website of *Latvijas Gaze AS* and is updated on a regular basis.

In order to ensure uninterrupted operation and proper technical condition of the natural gas transmission system and storage facility, *Latvijas Gaze AS* is obliged to control the quality of gas entered into and discharged from the system, to keep relevant records and balance the natural gas transmission system, while the market participants wishing to transport natural gas are obliged to ensure the compliance of the natural gas, biogas, and gas produced from biomass, as well as liquefied natural gas converted to its gaseous form, to be entered into the transmission system with the natural gas quality characteristics established by the Cabinet of Ministers, as well as obliged to comply with the established operating modes and natural gas transportation schedule.

Continuing a gradual liberalization of the natural gas market, based on the Cabinet approved road map for further reforms in the natural gas market of 3 March 2015, as well as the decision on the model for separation of the transmission system operator – full separation of ownership as of 3 April 2017; law *Amendments to the Energy Law* was adopted at the Saeima. The draft law provides for two main deadlines for full separation of ownership of the natural gas transmission and storage system operator:

– 3 April 2017, when a legally independent company shall be established that provides the services of the natural gas transmission system operator and storage system operator and owns the transmission system assets and has the Incukalns underground gas storage facility (owns or uses parts of it) at its disposal, as well as licenses for provision of natural gas transmission and storage services, and is confirmed as the transmission system operator;

– 31 December 2017, when the separation of ownership of the natural gas transmission and storage system operator has to be completed, namely, it has to be achieved that the transmission and storage system operator is a capital company independent from *Latvijas Gaze AS*, the owners of which are not related to *Latvijas Gaze AS* or its shareholders either directly or indirectly. This requirement does not apply to financial institutions that hold shares of the single natural gas transmission and storage system operator, as well as the energy supply merchant engaged in the production or sale of natural gas. State pre-emption rights are provided for in the draft law in relation to the change of ownership of *Latvijas Gaze AS*.

The law prescribes that, as of 3 April 2017, the price of natural gas is determined by the natural gas market participants by a mutual agreement. By ensuring the opening of the natural gas market, the draft law provides for the right of all natural gas users to freely choose a natural gas trader as of 3 April 2017. To reduce social tension, a gradual opening of the market is planned for

household users, namely, they reserve the right not to use the opportunity of becoming a market participant to freely choose a natural gas trader. By using the right not to become a market participant, household users will retain the user status and the possibility to buy natural gas according to the tariffs set by the regulator, rather than the market price.

To diversify the natural gas supplies in Latvia and throughout the Baltic region, it is necessary to involve alternative natural gas suppliers in the market. It is possible by doing the following:

- constructing interconnection GIPL of the Lithuanian-Polish natural gas supply systems;
- implementing the regional LNG terminal project;
- ensuring third-party natural gas supplies to the region through the existing natural gas supply infrastructure (namely, by diversifying the natural gas supply sources, rather than the supply routes).

In order to end isolation of the Baltic States and secure alternative gas deliveries there are few projects proposed, including regional LNG terminal, GIPL (interconnection Poland-Lithuania) and BalticConnector (interconnection Finland-Estonia). Referring to the Gas Regional Investment Plan developed by transmission system operators (TSO) of the Baltic Energy Market Interconnection Plan (BEMIP) region there are several projects that can provide alternative gas supply to the Baltic States, end their isolation and considerably improve security of gas supply.

There are very different and mutually unlinked security levels in various EU regions. The gas crisis in 2009 affected 18 European countries, some of them significantly, some countries could withdraw gas from their underground gas storages or switch to another sources. Whereas the Baltic States as well as Spain, Portugal, UK, Scandinavia were not confronted with the problem. Latvia enjoys the best situation of the three, mainly due to the existing Incukalna underground gas storage (UGS). The macro-regional principle is an advantageous one for the small Baltic States. The comparison of the potential infrastructure developments shows that the most efficient option is the pan-Baltic LNG terminal that is interlinked with the expanded UGS⁶². Naturally, the upgrade of the cross-border pipes is necessary. Any national-scale LNG project will be more expensive, especially those in Estonia and Lithuania. The share of gas in the Baltic States's primary energy demand will increase, but diversification of primary energy sources will remain healthy. At the same time import dependence for gas will increase, but so will the diversification of sources. The adoption of clear laws and

⁶² See also Karnitis, E. Strategy and efficient mechanisms to improve security and sustainability of the natural gas supply in Baltic States. *Journal of Security and Sustainability*, Issue 1(1), 2011. Pp. 5-17; [dx.doi.org/10.9770/jssi.2011.1.1\(1\)](https://doi.org/10.9770/jssi.2011.1.1(1)).

regulations may encourage diversification and flexibility. The distinction between guaranteed and interruptible customers must be strengthened and importers must be required to prove their ability to continue serving guaranteed customers in the event of a crisis. Diversification of sources should be encouraged. The risk of a major interruption of gas supplies is political in nature and diplomacy remains the primary tool to address it.

Conclusions. The issue of security should be debated at the political level, to decide whether diplomacy is sufficient or more needs to be done. In the latter case, the threat against which the system needs to be protected must be clearly defined – which is again a political and not a technical issue. The EU could consider establishing a supplier of last resort or a fund to invest in expanding import capacity from new sources and maintain infrastructure redundancy. In view of the fact that diplomacy has worked well even in difficult times, it is our guess that a well-informed political debate will scale down concerns for gas supply security. Even assuming that a pessimistic definition is given of the relevant threat, this could be dealt with through sensible legal and regulatory approaches.