

The Future of Energy Consumption, Security and Natural Gas

“This book about natural gas and LNG especially in Baltic Sea region, edited by Professor Kari Liuhto, should be the basic material for politicians, civil servants, businesspeople and academia to better understand the sector and the transition. Its logic is sound, statistics collected are impressive.”

—Seppo Remes, *Professor in Practice, Lappeenranta University of Technology, former member of the Board of Russian plastics and petrochemical giant Sibur Holding*

“This study is a topical and very useful presentation that opens up new perspectives for security research as well. The book deals extensively with the ongoing development and the future of natural gas—especially LNG—in the Baltic Sea region. Because energy is the foundation of our modern lives, its role and development also affect regional and international security. The study provides an excellent demonstration of how economic interdependence is forcing the countries of the Baltic Sea region to tighten their partnerships. The most important message of the book is to show that energy issues are both political and economic from the point of view of comprehensive security.”

—Military Professor, *LTC Marko Palokangas, Finland's National Defence University*

Kari Liuhto
Editor

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LNG in the Baltic Sea region

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PREFACE

Although liquefied natural gas (LNG) was already manufactured in the nineteenth century and the regular LNG exports started already 60 years ago, in international gas trade the LNG boom only started in the beginning of this millennium. As a consequence of this boom, the volume of international LNG trade has tripled in the past two decades. In fact, the LNG supply has grown faster than its consumption, which has led to the LNG oversupply and a fall in prices. Despite the current oversupply, international LNG trade is forecasted to double its current level by 2040.

The roots of this book are in the year 2015, when the Centrum Balticum Foundation (www.centrumbalticum.org/en) operating in Turku, Finland compiled a research brief ‘Natural Gas Revolution and the Baltic Sea Region’. This book returns to that revolution to analyse how the revolution has progressed in the Baltic Sea region. The main purpose of this book is to describe the development of natural gas—particularly LNG—in the Baltic Sea region and to assess the security of energy supply linked with LNG.

This book is a collection of articles. This book begins with Mariusz Ruszel’s article examining the global LNG development. This Polish professor discusses in his article the way the geoeconomic factors impact the LNG exports, the way the competition between LNG exporters is turning out and the way the corona pandemic will change the global LNG market. Ruszel observes that many long-term gas contracts will expire within the next ten years. What these contracts will be replaced with has

an impact on the entire European gas market. After the global perspective, the book deals with the European Union. Kari Liuhto analyses the development of natural gas—particularly LNG—in the energy consumption of the European Union in this millennium. Following a detailed review, this Finnish professor addresses the energy supply risk caused by the fact that few LNG tankers are owned by EU countries. After these two introductory chapters, the analysis turns to the Baltic Sea region, the geographic focus of the book.

Leonid Grigoryev and Dzhaneta Medzhidova approach a role of LNG in the Baltic Sea countries through climate change and the EU's Green Deal. This Russian duo seeks to find out what kind of role will liquefied natural gas have in the transition from fossil fuels to renewable energy in the Baltic Sea region. The third Russian expert of the book Andrey Shadurskiy describes in detail the current state of Russian LNG export terminals and outlines the future development of the Russian LNG exports. Shadurskiy writes that Russia aims at being at least the world's second largest LNG exporter within the next 15 years.

Mykhailo Gonchar and Igor Stukalenko examine Russian natural gas exports through pipelines. These Ukrainian experts analyse the position of the Nord Stream gas pipes, Belarus and Ukraine in the Russian gas exports to the European Union. They reveal startling historic evidence of the way the former Soviet Union strove to use natural gas and gas pipelines for its geopolitical purposes and the way the natural gas pipelines have returned to Russian foreign policy during President Vladimir Putin's terms in office. Gonchar and Stukalenko also introduce a novel idea that the EU could utilise Ukraine's large underground gas storages when aiming at enhancing the EU's security of supply of natural gas.

In his article, Jakub M. Godzimirski deals with the hydrocarbon reserves of Europe's second largest energy exporter Norway, as well as the development of their production and exports to the European Union and Great Britain. Godzimirski's article reveals the decrease in Norway's gas production in the 2030's and Norway's significant role as gas supplier to Poland through Baltic Pipe. The article also points out that Norwegian natural gas may have an essential role in the production of green hydrogen. Norway's relatively voluminous gas reserves, well-developed energy infrastructure and access to renewable hydropower can make Norway a dream partner for the EU in a new era of green hydrogen.

In his article, Professor Dariusz Zarzecki examines the progress of the LNG revolution in Poland, i.e. how Poland built the Baltic Sea region's

largest LNG import terminal in Świnoujście in north-western Poland. Poland intends to expand this LNG terminal and is planning to build a second LNG receiving port in Gdańsk in north-eastern Poland. Once Świnoujście has been expanded, the Gdańsk LNG import terminal and Baltic Pipe have been constructed, the import capacity of these units exceed Poland's annual natural gas consumption. From Poland, we move to the Baltic States. Our first point of interest is the LNG import terminal opened in Lithuania in 2014. Thanks to this LNG receiving unit, the Baltic States are no longer solely dependent on Russian natural gas. The article by Tadas Jakštas studies the energy security of the Baltic States and the significance of Lithuania's LNG import terminal to security of energy supply in the Baltic States. Both the articles of Zarzecki and Jakštas indisputably demonstrate that the LNG receiving facilities in these countries have decreased the dependence on Russian natural gas and lowered the price of gas deliveries from Russia by breaking Gazprom's unnatural natural gas monopoly.

Reinis Ābolstiņš analyses the energy production and energy consumption in the Baltic States, as well as Latvia's plans to build LNG import infrastructure on its soil. In addition to describing Latvia's plans for an LNG receiving port, Ābolstiņš presents an extremely significant factor in the security of energy supply of all the Baltic States, i.e. the underground gas storage in Inčukalns, Latvia, which is the largest in the Baltic States. This gas storage allows all the three Baltic States and Finland to meet their natural gas needs during the whole winter season.

After the Baltic States, we turn to Finland. Laura Klemetti and Hanna Mäkinen study the development of natural gas—particularly LNG—in Finland and the role of the Balticconnector gas pipeline between Estonia and Finland in Finland's energy supply. These Finnish researchers point out that Balticconnector alone does not bring true gas diversification for Finland, and therefore the security and diversification of gas supply in Finland and the Baltic States necessitates the completion of the gas interconnection between Poland and Lithuania (GIPL).

At the end of the book, Anna Mikulska assesses the significance of the diversification of gas imports in the Baltic Sea region countries and the integration of gas transport infrastructures to the security of energy supply in the region. Using a calculation model, this Polish-born energy expert, who currently lives in the USA, shows how much the Baltic Sea region countries still now are over-dependent on Russian natural gas.

In the epilogue, Kari Liuhto, the editor of the book, gathers the main observations of the chapters and attempts to outline the future development of natural gas in the European Union and the Baltic Sea region.

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