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***Topic area B: "Enhancing strategic dialogue
and operational efficiency with view to
strengthening NATO's role in energy
security Acts"***



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Topic Area B: Enhancing strategic dialogue and operational efficiency with view to strengthening NATO's role in energy security

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1. Welcoming Letter

Dear delegates,

It is our genuine pleasure to officially welcome you to this assembly of NATO's North Atlantic Council, as simulated in the 2019 edition of "Thessaloniki International Student Model United Nations". We feel truly honored and delighted to be serving as your board, and we would like to affirm to you that we shall do anything in our capacity to help render your participation in this year's conference an unforgettable experience.

We are convinced that your choice to participate in this simulation and specifically our committee positively proves your keenness and enthusiasm to further engage in the area of regional cooperation and particularly our topic area under discussion; "Integrating NATO Partners in NATO-led operations and crisis management: taking forward the Partnership Interoperability Initiative and the EU-NATO Joint Declaration in Warsaw". That being said, it cannot be stressed enough that your participation in the committee as well as your overall preparation for the conference rests primarily with your personal effort and determination. In order to facilitate the process and set the initial foundation for your research, we have prepared for you the present guide. This Study Guide shall act as a useful handbook to direct your research and present to you with all necessary information to thoroughly comprehend the challenges of the subject matter. However, the role of the present document is merely supportive of your own investigation, also focusing on the particularities of your delegation. So, you will need to engage yourselves in a further research regarding your country's policy, the role of NAC upon this matter and the substance of this topic, in order to better prepare yourselves for the upcoming challenging debate.

During the upcoming days of the conference, you will be called upon to represent the interests of your assigned sovereign state while concurrently debating on concrete proposals to be added in a communiqué, showcasing your acquired expertise but also your creativity and inventiveness in policy building. With view to effectively participating in this endeavor, you are urged to also very closely study the Rules of Procedure document. What we expect from you as your board, is enthusiasm, readiness and punctuality. Fully acknowledging that the aforementioned is not a simple task, we assure you that we are committed to assisting you along the way by any means necessary so as to reach the finest potential results. We also remind you that, from this point on and until the end of the conference, we remain at your disposal for any further inquiry or specification.

We cannot describe how excited we are to meet each and every one of you in Thessaloniki! Until then,

Best regards,

Stavros-Christos Papakyriazis (President of the North Atlantic Council)

Emmanuela Diakaki (Vice-President of the North Atlantic Council)

Dionisis Menagias (Secretary-General of the North Atlantic Council)

2. List of Abbreviations

NAC (North Atlantic Council)
NATO (North Atlantic Treaty Organization)
GDP (Gross Domestic Product)
ESCD (Emerging Security Challenges Division)
ENSEC COE (Energy Security Center of Excellence)
OPEC (Organization of Petroleum Exporting Countries)
SPS (Science for Peace and Security)
EU (European Union)
OECD (Organization of Economic Cooperation and Development)
TAPI (Turkmenistan-Afghanistan-India-Pakistan)
RAP (Readiness Action Plan)
VJTF (Very High Readiness Joint Task Force)
WFP (World Food Program)
DG-ECOFIN (Directorate-General for Economic and Financial Affairs of the European Commission)
NDPP (NATO Defense Planning Process)

3. Introduction to the North Atlantic Council

The North Atlantic Treaty Organization (NATO) was born on April 4th 1949 with the signing of the Washington Treaty. The founding members were Norway, Denmark,

Belgium, The Netherlands, Italy, Portugal, Luxemburg, Iceland, United Kingdom, France and the United States of America. All of them were sworn to stand together against any form of aggression. NATO, as a political and military alliance, focuses to guarantee the freedom and security of the citizens of its member states, using political and military means. While NATO serves as a proponent of democratic values, providing its members a forum to consult and cooperate on security issues, NATO also remains committed to the peaceful resolution of conflicts. However, in case diplomatic efforts come to a dead-end, crisis-management operations can be carried out by NATO's military power.

The aforementioned operations were embodied in the Washington Treaty and, more specifically, in Article 5, which represents the will of member-states to collectively respond to either an armed or a cyber-attack against a NATO ally, by any means they deem necessary. An attack against one is an attack against all. Furthermore, those operations can be carried out under a United Nations mandate. In addition to member-states, NATO can also operate alongside other countries and international organizations. We must underline that Article 5 has been invoked only once so far, following the 9/11 terrorist attacks that struck the United States in 2001.

NATO's first and main objective was to prevent the spread of the Soviet threat, an objective that was carried out very successfully. Following the end of the Cold War, many expected for the Alliance to cease to exist, mainly due to the fact that it had fulfilled its purpose. Albeit the alliance adapted to the current reality. NATO broadened its role in order to build fundamental bonds between the European countries and former communist states, resolve regional and national conflicts in Middle East and Eastern Europe. Nowadays NATO additionally aims to actively construct productive communication with Russia, Ukraine and other non-member states in order to combat terrorism and other major threats for humanity, as the proliferation of nuclear weapons and the revival of nationalism ideology within Europe and other parts of the world.

NATO's members have expanded from 12 founding members to 29 as of 2018, through various processes of enlargement. The last one took place in 2017 with the addition of Montenegro. Every member state is committed to funding NATO with a

minimum of 2% of their Gross Domestic Product (GDP) on the alliance common defense efforts. This guideline has been in effect since 2006 and in 2017 only 5 members met the 2% goal; Estonia, Poland, Greece, UK, and USA. NATO membership is open to every state that is in position to respect and broaden the principles of the Washington treaty and commit to a collective effort for the security of the North Atlantic Area. On top of that, 40 non-members and international organizations as far as the political and security issues are concerned. All member states are equal and this is reflected via the decision making process of NATO.

The North Atlantic Council (NAC) is arguably the heart of the Alliance, since it is the principal political decision-making body of NATO. It is the main governing body of the Alliance and the only that its authority is guaranteed by the North Atlantic Treaty and, more specifically, article 9¹. The NAC is one of the two NATO delegations, with the Nuclear Planning Group being the other. Also, the Nuclear Planning Group has a comparable authority to the NAC, as far as nuclear policy is concerned.

Security issues of the Alliance are discussed during NAC's meetings and every member state has a seat and only one vote at the Council. It meets at least once a week and, in any case, when there is a need that has to be addressed. A decision in order to be adopted by the Council requires unanimity and common accord. Thus, all member countries have to provide the Council with their positive vote for a policy decision with no exceptions, since all members are equal. This is a prerequisite aiming to ensure that every decision taken by the Council reflects the will and the collective effort of all member states. The North Atlantic Council is chaired by the Secretary General of NATO who makes sure that all opinions are aligned so an agreement can be reached.²

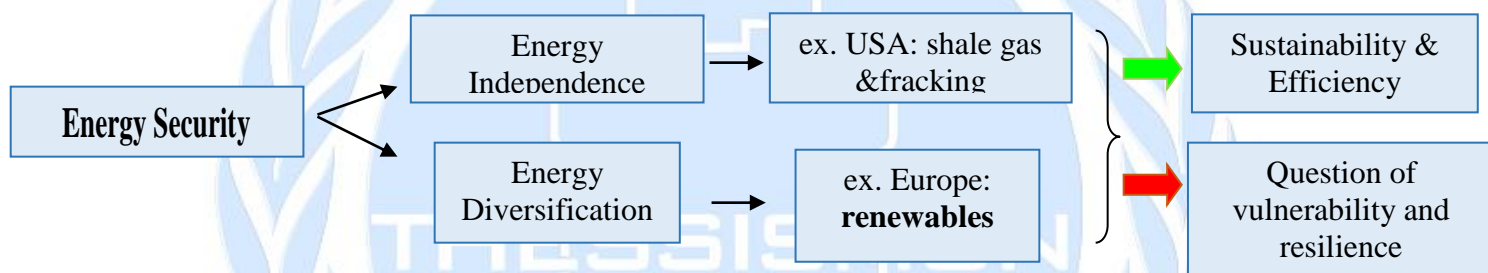
4. Introduction to Topic Area

¹ NATO. NATO Treaty en Light. [Online] [Accessed on 4 December 2018]. Available at: https://www.nato.int/nato_static/assets/pdf/stock_publications/20120822_nato_treaty_en_light_2009.pdf

² NATO.int, What is NATO [Online], Accessed on 4 December 2018, Available at: <https://www.nato.int/nato-welcome/index.html>

Enhancing strategic dialogue and operational efficiency with view to strengthening NATO's role in energy security- pertains to a current challenge for the Organization that has become one of the most significant security questions in the Euro-Atlantic region over the last decade and is only increasing in severity as time goes by.

Major global developments, such as the massive increase of energy demand due to the vast growth of emerging economies like India and China, the political instability of traditional energy producing countries in the Middle East, as well as Europe's dependency on Russian energy, frequently used as a political tool, have raised the question of regional and international energy security, meaning the connection between the affordability and availability of energy resources and state security.³



Energy developments are closely monitored by NATO, yet the Alliance is still seeking to enhance its now modest role concerning energy security without duplicating the one portrayed by other designated energy institutions. Notably, NATO engagement in energy security is imperative for strategic awareness raising and for remaining the greatest forum of political dialogue on transatlantic security, aiding and even pushing national governments in some cases to reduce dependence on traditional energy sources and even reducing their environmental footprint.

Today, NATO has a coherent Energy Security Agenda, strengthened by the 2010 Strategic Concept and the Bucharest Summit Report, which includes three main areas of action; (a) raising strategic awareness by sharing intelligence and by projecting partnerships with third states and the private sector, (b) protecting critical energy

³ International Energy Agency. Topic; What is energy security? [Online] 2018[Accessed on 29 November 2018]. Available at: <https://www.iea.org/topics/energysecurity/whatisenergysecurity/>

infrastructure from traditional and non-traditional security threats raising resilience, and (c) promoting energy efficiency in NATO operations globally with view to reducing dependence on host states' traditional energy resources while also addressing the issue of climate change.

5. Historical Background

NATO is first and foremost a military alliance. However, global changes in the energy market, as well as international events impending energy infrastructure and reliance, have given rise to energy security as a critical matter of state security, where NATO maintains an increasingly significant role.

Dating back to the formation of the North Atlantic Treaty Organization during the “Cold War”, member states joined forces in order to safeguard their security and sovereignty. The provision outlined in Article 5 of the Washington Treaty epitomizes the idea of collective defense amongst allies and sets the foundation of the Organization's security agenda.⁴ Under the aforementioned provision, in the event of invocation, NATO forces would strain and use any means in their power to protect endangered critical infrastructure, including energy infrastructure which is only implied at that time.

Discussion aimed specifically toward energy security as a part of NATO's agenda wasn't launched until the beginning of the new millennium, at the aftermath of the Eastern European gas conflicts of 2005-2006 and 2009-2010 between Russia and Ukraine, impairing energy flow within Europe; even by 100% in some cases like Croatia and Serbia in 2006.⁵ The Riga Summit Declaration in October 2006 constitutes a cornerstone of NATO's Energy Agenda, since it distinctly acknowledges the connection between energy and security for the first time, by stating in article 45

⁴ North Atlantic Treaty Organization, *Collective Defense – Article 5*, [Online]. 2018. [Accessed 29 November 2018]. Available from: https://www.nato.int/cps/en/natohq/topics_110496.htm

⁵ Parfitt, T. Russia turns off supplies to Ukraine in payment row, and EU feels the chill. *The Guardian [online]*. 2 January, 2006. [Accessed November 28 2018]. Available at: <https://www.theguardian.com/world/2006/jan/02/russia.ukraine>

that “As underscored in NATO’s Strategic Concept, Alliance security interests can also be affected by the disruption of the flow of vital resources” and the urgency to “consult on the most immediate risks in the field of energy security, in order to define those areas where NATO may add value to safeguard the security interests of the Allies and, upon request, assist national and international efforts”⁶, thus including a coordinated approach to energy security in the Summit Agenda.

In 2008, in virtue of the Bucharest Summit, a classified report, “NATO’s Role in Energy Security”, was issued, including principles and proposals on the range and depth of the Organization’s future engagement with the issue. Several key areas of involvement were agreed upon, such as information sharing, advancing cooperation, managing consequences and protecting critical infrastructure.⁷ The broader involvement commitment outlined in the report was originally questioned by many member states as energy security was still widely perceived as a primarily economic issue and also because of concerns about Russian hostility due to NATO intervention with the energy market in Europe. Nonetheless, after the Bucharest Summit NATO began to address the issue of energy security by intelligence sharing among member states for security assessment, consultation with third transit or producing countries, and protecting energy infrastructure through sea lanes surveillance.⁸

In November 2010, NATO achieved to engender a more coordinated and comprehensive approach to energy security, setting distinctive goals via the 2010 Strategic Concept: *Active Engagement, Modern Defense*, NATO’s Strategic Concept adopted at the Lisbon Summit, outlines the three core tasks of the organization-

⁶North Atlantic Council Riga Summit Declaration, 29 November 2006. [Online]. [Accessed November 29,2018] Available at: https://www.nato.int/cps/en/natohq/official_texts_37920.htm?selectedLocale=en

⁷ NATO Multimedia Library, Energy Security [Online]. 2018. [Accessed November 29 2018]. Available at <http://www.natolibguides.info/energysecurity>

⁸Tamburini, F., *NATO's role in energy security: does NATO meet the needs of Member States?* Graduate Research Paper. LUISS Guido Carli. 2009.

*collective defense, crisis management and cooperative security*⁹ - recognizing all countries' reliability on energy security as well as energy supply exposure to disruption globally (Article 13), the fact that increasing energy needs affect the security environment and NATO operations (Article 15) and the need to “*develop the capacity to contribute to energy security, including protection of critical energy infrastructure and transit areas and lines, cooperation with partners, and consultations among Allies on the basis of strategic assessments and contingency planning*” as a part of Article 19.¹⁰

Emerging Security Challenges Division (ESCD)

NATO's commitment to addressing unconventional challenges and non-traditional threats to security was made evident in 2010 by the establishment of the Emerging Security Challenges Division, hereinafter ESCD, within the NATO International Staff, including among others an Energy Security Section. Principal areas of interest of the ESCD are *terrorism, the proliferation of Weapons of Mass Destruction, cyber defense, and energy security*.¹¹ The purpose of said division is to coherently and effectively respond to the risks generated by the ever evolving international environment in order to predict and manage new challenges, ensuring the implementation of the new Strategic Concept. To this view, continuous reform of NATO's intelligence society and operations are considered critical, as well as development and experimental activities, new and advanced global partnerships,

⁹North Atlantic Treaty Organization, Strategic Concepts. [Online]. 2018. [Accessed November 28 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_56626.htm

¹⁰ Strategic Concept for the Defence and Security of The Members of the North Atlantic Treaty Organisation; “Active Engagement, Modern Defence”. 25 November 2010. [Online].[Accessed 28 November 2018]. Available at: <https://www.nato.int/lisbon2010/strategic-concept-2010-eng.pdf>

¹¹North Atlantic Treaty Organization, New NATO division to deal with Emerging Security Challenges, *Press Release*. [Online]. 4 August 2010[Accessed 29 November 2018]. Available at: https://www.nato.int/cps/en/natohq/news_65107.htm

safeguarding of cooperation within the Alliance, and an integrated approach encompassing close civil-military synergy.¹²

Energy Security Center of Excellence (ENSEC COE)



In July 2012, the NATO Energy Security Center of Excellence was established in Vilnius, Lithuania, to support the Organization's capability development process, ensure effective operations, enhance interoperability and provide expertise on all dimensions of energy security. Since there is no universally accepted definition of energy security as it is experienced differently by states, NATO ENSECCOE has developed an operative definition - *"the uninterrupted availability and resiliency of energy sources to support Alliance security interests"* - to facilitate its activity.¹³ The Center of Excellence in Vilnius is dedicated to providing member states, third producing or transit states and partners with expertise on the area of energy security via the Strategic Analysis and Research Division, the Education, Training and Exercise Division and the Doctrine & Concept Development Division. All three divisions operate in a vertical means, all reaching throughout the three dimensions of NATO's role in energy security;

- Raising awareness of energy developments with security implications;
- Developing NATO's competence in supporting the protection of critical energy infrastructure and enhancing resiliency;

¹² Emerging Security Challenges Division. *Portal*. [Online]. 2010. [Accessed November 29 2018]. Available at: <https://esc.hq.nato.int/default.aspx>

¹³ Col. Bagdonas, G. NATO Energy Security Center of Excellence. [Online]. 2016. [Accessed 29 November 2018]. Available at: [file:///C:/Users/forexsection/Downloads/NSF2016_v17_n12_4_Gintaras_Bagdonas_Patricia_Orglerova%20\(2\).pdf](file:///C:/Users/forexsection/Downloads/NSF2016_v17_n12_4_Gintaras_Bagdonas_Patricia_Orglerova%20(2).pdf)

- Improving the energy efficiency of military forces.¹⁴

Therefore, NATO ENSEC COE constitutes the tool which was established as a hub of expertise in cooperative energy security and ensures the Organization's role in energy security as a whole, while not interfering with national energy and economic policies, and not duplicating the role and responsibilities of other respectful organizations.¹⁵

6. Legal Framework

Bucharest Summit Declaration

On the 3rd of April 2008, NATO allies gathered in Bucharest in order to enforce their alliance and combat new 21st century security threats that had occurred, reviewing at the same time their already made progress. When reaching the issue of Energy Security, NATO allies created a report named "NATO's Role in Energy Security", defining NATO's approach to the field. The creation of this report was NATO's first indicator of involvement in the area of energy security. Among others, NATO allies agreed to focus on: *"information and intelligence fusion and sharing; projecting stability; advancing international and regional cooperation; supporting consequence management; and supporting the protection of critical energy infrastructure"*. Moreover, they decided that a following report on their progress, in accordance with decisions made during the Bucharest Summit, would have been created by 2009 and further measures taken in order to ensure NATO's enhanced role on the energy issue.¹⁶

¹⁴Col. Bagdonas, G. *Role of NATO in Supporting Energy Security and Enhancing Resilience of Critical Energy Infrastructure*. Director, NATO Energy Security Center of Excellence, 2018.

¹⁵ NATO Energy Security Center of Excellence. *Enhancing Cooperative Energy Security*. [Online]. 2017. [Accessed 29 November 2018]. Available at: https://www.enseccoe.org/data/public/uploads/2017/12/nato_ensec_coe_brochure_web.pdf

¹⁶ Bucharest Summit Declaration [Online], 3 April 2008, Accessed 5 December 2018, Available at: https://www.nato.int/cps/us/natohq/official_texts_8443.html

The Energy Charter Treaty and Related Documents: A Legal Framework for International Energy Cooperation

The Energy Charter Treaty is a basic instrument that focuses on the promotion of international cooperation in the energy sector. This document, among others, came into force on the 16th of April, 1998 and its main goal was the creation of an international, open, non-discriminatory energy market by providing the its necessary legal framework. It dates back to a political initiative launched in Europe in the early 1990s, right after the end of the Cold War, when many opportunities for overcoming previous economic divisions on the European continent came to the surface. Many countries, such as Russia and its neighbors were rich in energy resources and were seeking significant investments to ensure their development. On the other side of the planet, in Western Europe, countries were aiming to diversify their sources of energy supplies. Albeit, the establishment of a common foundation between states of the Eurasian continent was a necessary move. Many countries of the European Union, Central and Eastern Europe, Central Asia, Russian Federation, Japan, Australia, Mongolia and the Caucasus were involved in the making process of this treaty, a treaty which remains open for accession by all countries that have decided and are committed to observance of its principles. The main focus is tracked on “*multilateral cooperation over transit, trade, investments, environmental protection and energy efficiency.*” All constituent members of the treaty aim to fully implement all of its commitments in order to achieve their energy goals set on this specific Energy treaty.¹⁷

Resolution 372

¹⁷ The Energy Charter Treaty and Related Documents [Online], 2004, Accessed 6 December 2018, Available at: <http://www.ena.lt/pdfai/Treaty.pdf?fbclid=IwAR2qvFhxBfT2ttY3Dlry4Wc8dWpb50t-g9Jp2Ufu8YRtkuxQdENMEFurhBc>

Resolution 372 was adopted by NATO Parliamentary Assembly during its 54th Annual Session held in Valencia, Spain, during the 14th-18th Of November, 2008. It is a resolution which followed the NATO summits of Riga and Bucharest, welcoming the progress made during them on such a significant challenge as energy security. Its main characteristics are that it is based on the theory of “*balancing the interests of energy suppliers, consumers and transit countries and allowing market forces to govern global and regional energy markets in a transparent and non-discriminatory fashion*”. Moreover, it is based on NATO’s concerns over “the possible creation of an international cartel for natural gas similar to that of the Organization of Petroleum Exporting Countries (OPEC), which would pose a significant threat to the price and the supply of energy as well as to the economy and the security of the world”. The key points of this resolution are the enhancement of NATO’s role in Energy Field, the enforcement of dialogue with the Russian Federation over energy supplies, the support to international projects and the research over the environmental aspect of energy policies.¹⁸

Science for Peace and Security

The Science for Peace and Security (SPS) Program is an initiative that promotes dialogue and practical cooperation between NATO allies and other nations. Founded in 1958, its efforts are based on scientific research, technological innovation and knowledge exchange. It offers funding, experts’ advice and enhancement of activities that respond to NATO’s strategic goals. It focuses on connecting and enhancing the cooperation of experts, scientists and officials coming from allied and partner countries. Moreover, it follows the changing security environment and it focuses on aspects of NATO’s efforts concerning counter-terrorism, cyber defense, the development of valuable security-related technologies while considering the human aspect of security. “*Over the past five years, the Program has initiated more than 450*

¹⁸ Resolution 372: Energy and Security [Online], 18 November 2008, Accessed 6 December 2018, Available at: <http://www.nato-pa.int>

collaborative activities among its 29 member states and 41 partner countries ranging from cyber defence in Jordan to humanitarian demining in Ukraine.”¹⁹

Green Defense Framework

Green defense framework can be defined “as a multifaceted endeavour cutting across a wide range of activities, including operational effectiveness, environmental protection and energy efficiency. It involves several domains, including operations, logistics, engineering and defence planning and it includes a wide variety of actors: civilian and military, Allies and partners, international organizations and private sector”. It focuses on three main things: 1) reinforcement of NATO bodies’ efforts 2) facilitation of Allies’ efforts and initiatives 3) improvement of NATO’s “green profile”. This initiative was based on concerns over the environmental impact of NATO operations and exercises, aiming to enhance the use of conscious technologies, environmentally friendly. It highlights the need for cooperation between states and exchange of green solutions. Having the green defense framework as a foundation, NATO is building new strategies in order to become more energy efficient as an organization and environmentally sustainable, saving, at the same time, resources and improving operational effectiveness. NATO is now considering how the green policies and research could be promoted within the alliance as well, having in mind the creation of a “platform for Allies to draw upon work and expertise available in partner nations, other international organizations and industry. The Alliance’s efforts towards improved cooperation with partners and the private sector and better communication with the general public will contribute to the Alliance’s “green” profile.”²⁰

Framework for Future Alliance Operations

¹⁹ Science for Peace and Security Program [Online], 1958, Accessed 6 December 2018, Available at: <https://www.nato.int/cps/en/natolive/78209.htm>

²⁰ Green Defense Framework [Online], February 2014, Accessed 5 December 2018, Available at: http://www.natolibguides.info/ld.php?content_id=25285072

NATO has always planned to remain a stabilizing factor among all nations that aims to deal with uncertainty and challenges that occur. It focuses as well on retaining the values that characterize the Alliance and pass them to the next generations. Taking all the above mentioned into consideration, this document specifically helps the Alliance by informing it on new opportunities that tend to enforce its defense and deterrence posture while improving its stability, proactivity, readiness and responsiveness. In other words, this document advises NATO on how to retain the ability to defeat potential enemies on the battlefield and remain focused on its goals and purposes. It included the following chapters: “1) *The Future Security Environment – Challenges and Opportunities*, 2) *Strategic Military Perspectives – What Forces Need to BE and 3) Military Implications – What Forces Need to DO*” and lastly it refers to “*Technology Implications B-1, Future Cohesion Project Report C-1, Summary of Urbanization Study*”.²¹

7. Energy Security

NATO is by nature rather a security institution than an energy organization. Considerable energy developments during the last years have, however, engendered crucial aftereffect for many states and raised concerns pertaining to the international security environment. As a result, NATO has rendered Energy Security a central Alliance Agenda item, particularly focusing on strategic awareness, infrastructure, transfer routes and cyber defense.

A. Strategic Awareness

Energy Security is an increasingly global challenge, where NATO, as an established forum of political cooperation and dialogue on security issues with international

²¹ Framework for Future Alliance Operations [Online], 2018, 2018, Accessed 5 December 2018, Available at: https://www.act.nato.int/images/stories/media/doclibrary/180514_ffao18-txt.pdf

credibility, has undertaken an increasingly prominent role, affirming the Organization's status as an indispensable security provider.

One of the most essential tasks of the NATO agenda on energy security is raising strategic awareness of member states on the security implications of international energy developments.²² Attacks on fuel supplies of NATO operations, the rise of the Arab Spring in the Middle East, confrontation over Iran's nuclear deal, the rise of sea-lane concerns and counter piracy efforts due to increased maritime energy transfer, the Fukushima nuclear accident in 2011, Ukraine gas crises in 2006, 2009 and 2014, EU - Russia energy controversy and dependence, raised attention over transit routes and infrastructure security, international awareness concerning climate change and the issue of efficiency, are all events with far-reaching implications to energy security as a NATO area of concern in which the Alliance is dedicated to raising its strategic awareness.²³ Energy Security Strategic Awareness raising within the Organization's agenda mainly consists of (i) consultations on energy security amongst member and partner states, (ii) intelligence sharing and expanding links with respective international organizations, and (iii) NATO-led events and exercises on the subject matter.²⁴

i. Allies and partner's consultation

Consultation is one of the three fundamental security tasks performed by NATO, along with safeguarding the foundations of a stable transatlantic security environment based on democratic institutions and peaceful dispute resolution, and collective defense as defined in Articles 5 and 6 of the Washington Treaty. Consultation as a

²²North Atlantic Council, *NATO's role in Energy Security; Evolution*[Online]. 2018.[Accessed 30 November 2018]. Available at:https://www.nato.int/cps/en/natohq/topics_49208.htm#

²³Shea, J., Energy security: NATO's potential role, *NATO Review*. [Online]. 2018. [Accessed 30 November 2018]. Available at:https://www.nato.int/docu/review/2006/NATO-Transformation/energy_security_potential_role/EN/index.htm

²⁴North Atlantic Council, *NATO's role in Energy Security; Evolution*[Online]. 2018.[Accessed 30 November 2018]. Available at:https://www.nato.int/cps/en/natohq/topics_49208.htm#

means of maintaining regional security is determined in Article 4 of the North Atlantic Treaty.²⁵

“The Parties will consult together whenever, in the opinion of any of them, the territorial integrity, political independence or security of any of the Parties is threatened.”

Essentially, the provision of article 4 is to ensure an Alliance that acts as a forum of consultations exchange on matters of mutual concern, urgency and security in order to assure a coordinated transatlantic response capacity. Consultation within NATO is a regular process that takes place at both a formal and an informal way, via exchange of information and communication of government actions and decisions, leading to alliance policies based on consensus.²⁶ Consultation as a principle established in the Washington Treaty is the aspect of which the political dimension of NATO is derived and realized through the North Atlantic Council and other NATO committees and working groups. As far as the energy agenda is concerned, awareness raising through consultation encompasses not only political consultations among Allies, but also intelligence sharing on energy developments and risk assessment.²⁷

ii. International Organizations

The role of NATO in Energy Security is becoming more and more prominent, focusing on security implications of energy developments and aiming towards resilience, while not duplicating the role of other energy institutions, as previously mentioned in the guide. Nevertheless, while NATO embodies significant analytical

²⁵ *The North Atlantic Treaty*, 4 April 1949. [Online]. [Accessed 30 November 2018]. Available at: https://www.nato.int/nato_static_fl2014/assets/pdf/history_pdf/20161122_E1-founding-treaty-original-treaty_NN-en.pdf

²⁶ North Atlantic Treaty Organization, *The consultation process and Article 4*. [Online]. 2016. [Accessed 2 December 2018]. Available at: https://www.nato.int/cps/su/natohq/topics_49187.htm

²⁷ Grubliauskas, J. NATO's energy security agenda, *NATO Review Magazine*. [Online]. 2015. [Accessed 2 December 2018]. Available at: <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/nato-energy-security-agenda/en/index.htm>

capabilities in order to assure its ability to calculate the effects of energy, economic and other developments' impact on NATO operations and decisions, the Alliance still broadly relies on the expertise of other respected international and regional energy organizations.

In 2015, NATO welcomed the crucial cooperation with the *International Energy Agency*, allowing the Agency to contribute to the NATO-led annual “Roundtable on Energy Security”. This collaboration is considered a milestone in developing the Alliance’s Energy Security Agenda and relevant capacity building because it furthermore entails the participation of NATO officials in IEA-led energy security events including annual emergency response exercises. The IEA, consisting of 29 member states, was developed within the framework of the OECD, yet, remains autonomous, working closely with third states, like China and India, and maintaining a reliable reputation as far as analyses, studies and consultations are concerned.²⁸

NATO-EU cooperation in energy affairs is considered fundamental in the current context of unprecedented regional challenges from the East and the South, and has begun to launch in the form of a sustained discussion on energy transition and diversification, as part of the EU Global Strategy and the EU-NATO strategic partnership.²⁹ The 2016 Joint Declaration in Warsaw outlines the need for greater political communication between the two organizations concerning hybrid threats and security³⁰, which is also urged throughout the 2018 Declaration in

²⁸ North Atlantic Treaty Organization. *NATO Secretary General welcomes cooperation with the International Energy Agency* [Online]. 2015. [Accessed 2 December 2018]. Available at: https://www.nato.int/cps/ie/natohq/news_117616.htm?selectedLocale=en

²⁹ Ruhle, M. NATO and energy security, *NATO Review Magazine*. [Online]. 2011. [Accessed 2 December 2018]. Available at: https://www.nato.int/docu/review/2011/climate-action/energy_security/en/index.htm

³⁰ European Union, *Factsheet; EU-NATO Cooperation*. [Online]. 2018. [Accessed 2 December 2018]. Available at: https://cdn5-eeas.fpfis.tech.ec.europa.eu/cdn/farfuture/otambGc7_PZ7cDdMdQqOki4M3aTBIo6-efph8-K1vFI/mtime:1542899750/sites/eeas/files/eu-nato_cooperation_factsheet.pdf

Brussels.³¹ However, there is evident hesitation on the part of the European Union to specifically name Energy Security as an area of cooperation between the two organizations. This could be attributed both to fear of unnecessary duplication and of the event of militarization of an issue that is broadly handled from an economy point of view. Nevertheless, protection of critical infrastructure and military crisis response are not only complementary to initiatives and actions of the respected authorized organizations, but also imperative for the provision of the security of energy supplies in the region and the management of hybrid warfare.³²

iii. Events and exercises

NATO's complementary and irrefutable role in building strategic awareness of transatlantic energy security is notably showcased via the organization and hosting of events relevant to the area of energy developments. Training courses and programs, energy emergency scenarios in exercises, workshops, external expert briefings and other specialized events in cooperation with partner states and international organizations like the International Energy Agency add value to NATO's Energy Security Agenda, reinforcing its international role.³³ Distinctly, particular importance is attributed to the North Atlantic Council's annual seminars on global energy developments as well as the Energy Security COE's annual Energy Security Strategic Awareness Course.³⁴

³¹ *Joint Declaration on EU-NATO Cooperation by the President of the European Council, the President of the European Commission, and the Secretary General of the North Atlantic Treaty Organization*, Brussels, 10 July 2018. [Online]. [Accessed 2 December 2018]. Available at: https://www.consilium.europa.eu/media/36096/nato_eu_final_eng.pdf

³² Shea, J., Energy security: NATO's potential role, *NATO Review*. [Online]. 2018. [Accessed 30 November 2018].

³³ North Atlantic Council, *NATO's role in Energy Security; Evolution* [Online]. 2018. [Accessed 30 November 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_49208.htm

³⁴ NATO Energy Security Center of Excellence, *Courses; Energy Security Strategic Awareness Course* [Online]. 2015. [Accessed 2 December 2018]. Available at: <https://www.enseccoe.org/en/courses/211>

B. Critical Infrastructure

Reliability on critical energy infrastructure is not only universal, but increasingly escalating. Concurrently, energy infrastructure is extremely vulnerable, particularly when situated and operating in areas of conflict. The growing threat of terrorist attacks has rendered the protection of critical energy infrastructure a top strategic priority for the Alliance, a recent example being the fatal attack in Kandahar province in Afghanistan on the TAPI (Turkmenistan-Afghanistan-India-Pakistan) natural gas pipeline project.³⁵ Therefore, there is immediate need for NATO to strive to provide security of energy infrastructure by increasing international resilience and civil preparedness to any energy security threat.

Readiness Action Plan

Described as the most powerful reinforcement of collective defense since the Cold War³⁶, the implementation of the NATO RAP (Wales Summit 2014) ensures the Alliance's readiness to respond to contemporary threats from the East and the South, with view to safeguarding transatlantic security and contributing to the protection of energy infrastructure and transportation through land, sea and air. Principal initiatives of said action plan are increased military presence, especially near the eastern flank by NATO's new spearhead force, the Very High Readiness Joint Task Force (VJTF), and increased and more versatile exercises.³⁷ The main goal of the RAP is to bolster NATO's response capabilities when it comes to unexpected crises resolution. The reason why the RAP is essential for NATO's Energy Security Agenda is because it

³⁵ Graeber, DJ. Energy news; Five dead in attack on Afghan pipeline project. *UPI*. [Online] 21 May 2018. [Accessed December 3 2018]. Available at: <https://www.upi.com/Five-dead-in-attack-on-Afghan-pipeline-project/4171526903186/#ixzz5ZZxQxv9a>

³⁶ North Atlantic Treaty Organization, *Topics; Readiness Action Plan*. [Online] 2017. [Accessed 4 December 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_119353.htm

³⁷ North Atlantic Treaty Organization, Factsheet; NATO's Readiness Action Plan [Online] 2016. [Accessed December 2018]. Available at: https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2016_07/20160627_1607-factsheet-rap-en.pdf

includes maintenance and protection of critical energy infrastructure in order to support military activity and rapid deployment.³⁸

Critical energy infrastructure is largely structured via railways, ports, airfields and grids, meaning that energy security depends considerably on civil infrastructure and resources. For instance, it is calculated that 90 per cent of military transportation and almost 50 percent of military satellite communication is provided by the commercial sector and host nation support.³⁹ Therefore, it is essential that successful military-civil cooperation is achieved in order to secure transportation of resources and of military equipment in both conditions of peace and conflict.

Civil preparedness includes, as translated by NATO in February 2016, seven fundamental resilience requirements that are complementary to the Readiness Action Plan (RAP), implemented in response to the recent events in Ukraine.

1. *Continuity of government and critical government services;*
2. *Energy supplies;*
3. *Ability to deal effectively with uncontrolled movement of people;*
4. *Food and water resources;*
5. *Ability to deal with mass casualties;*
6. *Telecommunications and cyber networks;*
7. *Transportation systems.*⁴⁰

Hence, states are called to conduct a re-evaluation of their preparedness and vulnerabilities to the end of infrastructure security against contemporary threats, such as but not limited to cyber-attacks. Evidently, the aforementioned is mainly a national

³⁸ Arnold, JM. *NATO's Readiness Action Plan Strategic Benefits and Outstanding Challenges*. AIR University Strategic Studies Quarterly[Online] Volume 10 Issue 1. [Accessed 4 December 2018]. Available at: https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-10_Issue-1/Arnold.pdf

³⁹ NATO Multimedia Library, *Conflict Prevention and Diplomacy*. [Online] 2017. [Accessed 3 December 2018]. Available at: <http://www.natolibguides.info/conflictprevention>

⁴⁰ North Atlantic Treaty Organization, *Civil Preparedness*. [Online] 2018. [Accessed 3 December 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_49158.htm

issue and responsibility of each state. However, NATO has an important role to portray in contribution to national efforts. NATO has the means and the expertise to lead such efforts by best practices exchange with partners and Allies, especially pertaining to producing or transit countries, as well as other international organizations that are active in the energy sector and, of course, relevant private institutions.⁴¹

Article 3 of the 1949 North Atlantic Treaty

“In order more effectively to achieve the objectives of this Treaty, the Parties, separately and jointly, by means of continuous and effective self-help and mutual aid, will maintain and develop their individual and collective capacity to resist armed attack.”⁴²

Article 3 of the Atlantic Alliance’s founding treaty is where the principle of Resilience is provisioned and enshrined. Indicatively, resilience is the origin of member states’ responsibility to continuously develop their individual civilian, economic, commercial and military capacity and readiness in case of an attack, whether it be conventional or un-conventional. This founding principle is the cornerstone of the Alliance’s resilience as a whole. By nationally reducing vulnerabilities, not only military operations may depend on civil structures, where deployed, but energy infrastructure remains less exposed to threat and is less likely to be attacked.⁴³ Resilience, therefore, is the means by which Allies complement the effort of NATO to complete its core tasks and operations, especially in today’s

⁴¹ NATO Multimedia Library, *Conflict Prevention and Diplomacy*. [Online] 2017. [Accessed 3 December 2018]. Available at: <http://www.natolibguides.info/conflictprevention>

⁴² *The North Atlantic Treaty*, 4 April 1949. [Online], [Accessed 30 November 2018]. Available at: https://www.nato.int/nato_static_fl2014/assets/pdf/history_pdf/20161122_E1-founding-treaty-original-treaty_NN-en.pdf

⁴³ North Atlantic Treaty Organization. *Topics; Resilience and Article 3*. [Online] 2018. [Accessed 4 December 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_132722.htm

unpredictable security environment, while also mightily complementing the principle of collective defense.

C. Energy Transfer Routes

The Geopolitical Dimension of Resources

As far as energy security is concerned, geopolitics resemble the dynamic and static factors of the territorial distribution of energy resources. In fact, geopolitics showcase the connection between regional energy supply centers and the respective demand and how they affect both state and non-state actors in achieving their energy security objectives. Especially in those fields, an incident that occurs in one edge of the world affects every network that is involved with the oil market. As Winston Churchill has stated “Safety and certainty in oil lies on variety and variety alone”⁴⁴. It is clear that energy is a prerequisite for the function of a state, since a probable disruption in energy supply would set its functions and its society at a great danger.

Russia’s current President Vladimir Putin has adopted a series of successful policies concerning Russian energy resources. After the fall of the Soviet Union, Moscow made a comeback as a world power utilizing its vast energy resources and followed a safe path to become a key player in the global energy stage. The annexation of Crimea was a very strategic step for Putin and his energy strategy; it provides Moscow with control over a large swath of the Black Sea alongside many oil reserves⁴⁵. On the other hand, Kremlin’s success in the global energy game is also an essential vulnerability.

⁴⁴ Geopolitics of Energy and Energy Security, Instituto da Defesa Nacional, 2017 [Online], Available at: https://www.idn.gov.pt/publicacoes/cadernos/idncadernos_24.pdf, Accessed on 4 December 2018

⁴⁵ NATO.int, The Energy Dimensions of Russia’s Annexation of Crimea [Online], 2018 [Accessed on 5 December 2018], Available at: <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/Ukraine-energy-independence-gas-dependence-on-Russia/EN/index.htm>



Fig. 2 European Dependence on Russian Gas, Source: European Commission, Antitrust: Commission sends Statement of Objections to Gazprom for alleged abuse of dominance on Central and Eastern European gas supply markets, Press release, 2015, http://europa.eu/rapid/press-release_IP-15-4828_en.htm

Establishing itself as a major energy producer and exporter, rendered Moscow's economy heavily dependent on exogenous incidents such as downturns in oil prices and economic sanctions⁴⁶.

Nowadays, the EU can be characterized as the largest importer for Russia's energy. Moscow is actually providing the Union with 37% and 35% of its total gas and oil consumption respectively. Thus, there is a mutual dependence concerning energy security and both Russia and the EU are looking to turn to alternative solutions⁴⁷.

⁴⁶ Understanding Russian "Hybrid Warfare" and What Can be Done About It, The Rand , 2017 [Online], Available at: https://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT468/RAND_CT468.pdf, Accessed on 7 December 2017

⁴⁷ Geopolitics of Energy and Energy Security, Instituto da Defesa Nacional, 2017 [Online], Available at: https://www.idn.gov.pt/publicacoes/cadernos/idncadernos_24.pdf, Accessed on 4 December 2018

Russia's "hybrid warfare" is a term used to describe the techniques used by the former Soviet Union aiming to expand its national interests⁴⁸. Despite the fact that most activities are non-military, the main objectives are the weakening and dividing of NATO (divide and conquer), the annexation of land and to gain access to Western markets on its own terms. Russia's tactics vary. First of all, it usually carries out information operations. Through those operations Moscow wants to alter and cast doubt upon truth, using targeted television and social media. Secondly, an army of cyber warriors has been shaped for the benefits of the former Soviet Union, able to hack into Western information systems and extract classified data⁴⁹. Thirdly, Russia exploits its economic influence in order to alter the course of events in the European political scene. As it was already mentioned, this economic influence derives especially from its energy supplies. Energy is a tool for the Kremlin, mainly due to the existence of a wide network of gas pipelines built in Soviet times⁵⁰.

Those tactics raised the question whether NATO could effectively protect its Eastern border. NATO has to respond to that challenge. More specifically, the Alliance has to recognize the tactics utilized for "Hybrid Warfare" and support specific efforts, such as the Centers of Excellence established in Riga, in Tallinn and Lithuania. In July, the Alliance announced that such hybrid warfare acts against a member state could trigger the Article 5 of the Washington Treaty. Russia's tactics pose a threat to the unity of the Alliance and NATO has to adapt to the new challenge⁵¹.

Counter Piracy Initiatives

⁴⁸ Understanding Russian "Hybrid Warfare" and What Can be Done About It, The Rand , 2017 [Online], Available at: https://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT468/RAND_CT468.pdf, Accessed on 7 December 2017

⁴⁹ NBC.com, Ten Years of Russian Cyber Attacks on Other Nations [Online], 2018, [Accessed on 5 December 2018], Available at: <https://www.nbcnews.com/storyline/hacking-in-america/timeline-ten-years-russian-cyber-attacks-other-nations-n697111>

⁵⁰ Understanding Russian "Hybrid Warfare" and What Can be Done About It, The Rand , 2017 [Online], Available at: https://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT468/RAND_CT468.pdf, Accessed on 7 December 2017

⁵¹ NATO.int, Wales Summit Declaration [Online], 2018 [Accessed on December 5 2018], Available at: https://www.nato.int/cps/en/natohq/official_texts_112964.htm

NATO, as an organization, has always tried to combat threats of international security, imagining the world as a better and a safer place. With this mindset, one of NATO's targets was piracy. For many years now, NATO has conducted many operations, counter – piracy ones, that aim to eliminate this phenomenon and ensure international security.

In 2008, after a request from the United Nations, this body conducted the operations “Allied provider” and “Allied protector”. These operations were targeting piracy in the Gulf of Aden, off the Horn of Africa and in the Indian Ocean. In other words, their goals were to deter and disrupt pirate attacks, while protecting vessels and helping to increase the general security level of the region. Allied provider operation *“was responsible for naval escorts to World Food Program (WFP) vessels and, more generally, patrolled the waters around Somalia. Alliance presence also helped to deter acts of piracy that threatened the region”*⁵².

In 2009, NATO organized another operation, “Ocean Shield”. This operation aimed as well to reduce the piracy phenomenon and ensure safety and security. Its main goal was to combat the disruption of humanitarian aid that was being sent to Somalia, a disruption by pirates.

In all the above-mentioned operations, NATO worked closely with other main actors of the region such as European Union's Operation “Atlanta”, the US – led combined Task force 151 and individual country contributors.

All these 3 operations helped the combating of this dangerous phenomenon. Since 2012, no successful piracy attacks were conducted in the region. This resulted to the termination of the operation “Ocean Shield”. Nevertheless, the organization “remains engaged in the fight against piracy by maintaining maritime situational awareness and continuing close links with other international counter-piracy actors⁵³.” NATO still

⁵² NATO.int, Counter-piracy Operations [Online], 2018, Accessed on December 5 2018], Available at: https://www.nato.int/cps/ie/natohq/topics_48815.htm

⁵³ NATO.int, Counter-piracy Operations [Online], 2018, Accessed on December 5 2018], Available at: https://www.nato.int/cps/ie/natohq/topics_48815.htm

maintains its counter – piracy efforts at sea and ashore by enforcing defense strategies of regional countries and helping them build the capacity to fight piracy themselves⁵⁴.

NATO Defense Initiatives

One of NATO's main concerns is the defense department. All the allies cooperate in order to come up with defense mechanisms, able to ensure security and safety. Many NATO's initiatives on this issue can be highlighted.

First and foremost, NATO on a regular basis collects defense expenditure data from allies, presenting afterwards aggregates and subsets of this information. The procedure is the following: each Ally Country's Ministry of Defense reports current and future defense expenditure, following an agreed definition of defense expenditure. In that way, NATO is able to identify the amounts of money being spent or that will be spent in order for each country to meet the needs of its armed forces. Following this strategic procedure, it is easier to fill the "defense gaps" and see which country need enforcement of its forces, at the same time ensuring and enhancing public security and safety. In addition to this, "NATO also uses up-to-date economic and demographic information available from the Directorate-General for Economic and Financial Affairs of the European Commission (DG-ECFIN), and the Organization for Economic Co-operation and Development (OECD)⁵⁵."

Moreover, the so – called "NATO Defense Planning Process" is another notable NATO defense mechanism. That is a process which enabled NATO to identify the capabilities that defense mechanisms require and promotes their development and acquisition by the Allies. In other words, the NDPP provides a framework which leads to the harmonization of each country's national defense plan with those of NATO, avoiding at the same time the compromising of their national sovereignty. In order to do that it provides allies with requirements as Capability targets "on the basis

⁵⁴ NATO.int, *Counter-piracy Operations* [Online], 2018, [Accessed on December 5 2018], Available at: https://www.nato.int/cps/ie/natohq/topics_48815.htm

⁵⁵ NATO.int, *Defence Expenditure of NATO Countries* [Online], 2018 [Accessed on December 5 2018], Available at: https://www.nato.int/cps/en/natohq/news_152830.htm

of a fair share of the overall requirement, facilitates their implementation and regularly assesses progress. Lastly, its main goals are the minimization of the duplication and maximization of the coherence across the various planning domains that it consists of⁵⁶.

D. Cyber Defense

The Ukrainian experience of 2014 and the spillover effect of energy scarcity in Europe have undeniably illuminated the imperativeness of energy diversification and independence. The reason was the realization of Europe's high dependence on imported oil and gas, which lead in many cases to political corruption, blackmail⁵⁷, and hybrid warfare.⁵⁸ As a result, one of the most significant agenda items of the European Union over the last years has been energy transition, and the shift to renewable energy and technologies, now accounting for 30% of Europe's energy generation.⁵⁹ This shift, however, poses new and advanced threats to infrastructure. Expressly, renewable energy, much like fossils, requires refined industrial control systems and distribution networks, which in any case have high vulnerability to attack. Even more importantly, renewable energy, because of sparse availability of sources, is dependent on sophisticated storage facilities that include smart technology

⁵⁶ NATO.int, NATO Defence Planning Process [Online], Available at: https://www.nato.int/cps/en/natohq/topics_49202.htm?fbclid=IwAR1U3BZlZtx_ey8EJ_25oxfAh7hWHLLI-KYqk2LYRthfYXl6fxfo0YJ5Dbc, Accessed on 4 December 2018

⁵⁷ NATO Review, *Energy Security; What's at stake?* [Online]. 2016. [Accessed 5 December 2018] Available at: <https://www.nato.int/docu/review/2016/Also-in-2016/nato-energy-security-baltic/EN/index.htm>

⁵⁸Energy Charter Secretariat. *International Energy Security: Common Concept for Energy Producing, Consuming and Transit Countries* [Online]. 2015. [Accessed 5 December 2018]. Available at: https://energycharter.org/fileadmin/DocumentsMedia/Thematic/International_Energy_Security_2015_en.pdf

⁵⁹Rughle, M. and Tracimavicius, L. Cyber attacks are the new challenge for renewable energy. *Politico*. [Online] 28 January 2018. [Accessed 5 December 2018]. Available at: <https://www.politico.eu/article/opinion-cyberattacks-are-the-new-challenge-for-renewable-energy/>

in order to make them as efficient and sustainable as possible, yet exposed to security threats like cyber attacks and system hackers.⁶⁰

Indicatively, renewable energy companies in Europe have already been repeatedly hacked with view to intelligence gathering as well as system corruption. In 2015, it was proven that hackers have the capability to even control physical industrial systems and distribution of resources when a group of hackers attacked an electricity grid in Ukraine resulting in a quarter million citizens without power and long lasting critical damage to the system and severe physical damage to infrastructure. Thus,



vulnerabilities in the energy sector and especially grids, that seem to be a regular

⁶⁰ Merdan, E. Renewable energy in the age of cybersecurity. *AA Energy*. [Online] 21 June 2018 [Accessed 5 December 2018]. Available at: <https://www.aa.com.tr/en/energy/analysis/renewable-energy-in-the-age-of-cybersecurity/20575>

target, as well as industrial control systems operator training in crisis scenarios, should become a policy priority for national governments and private companies, as cyber-attacks continue to increase in frequency and destructiveness.^{61 62}

For NATO, resilience is interconnected with cyber defense, which is especially applicable when it comes too energy security. Therefore, it is essential for the Alliance to form strong technical and human cyber resilience strategies in order to adapt to the new and advanced security threats and unconventional warfare induced by current developments and vulnerabilities.

7. ENERGY EFFICIENCY

In March 2014, NATO's former Secretary General Anders Fogh Rasmussen underlined the importance of making energy diversification a priority for the Alliance, in order to reduce the European dependence for Russian Energy⁶³. Nowadays, energy security has become an essential strategic issue for the security of NATO. As it was already mentioned, the Alliance's security agenda is based on three pillars: Energy security as part of NATO strategic awareness, critical energy infrastructure protection and improvement of energy efficiency of NATO forces.

The issue for the enhancement of the energy efficiency as far as NATO's forces are concerned has been addressed in many Summit Declarations. The Allies have realized that the fuel requirements of their forces are rapidly growing and their operational success derives from energy efficiency. NATO fuel convoys have been struck multiple times in Afghanistan and Pakistan, only to make things more clear; long distanced operations need a network of support structures and NATO is forced to

⁶¹ Rughle, M. and Tracimavicius, L. Cyber attacks are the new challenge for renewable energy. *Politico*. [Online] 28 January 2018. [Accessed 5 December 2018]. Available at: <https://www.politico.eu/article/opinion-cyberattacks-are-the-new-challenge-for-renewable-energy>

⁶² World Energy Council. *The road to resilience: Managing cyber risks* [Online]. 2016. [Accessed 5 December 2018]. Available at: https://www.worldenergy.org/wp-content/uploads/2016/09/20160926_Resilience_Cyber_Full_Report_WEB-1.pdf

⁶³ NATO.int, Remarks by NATO Secretary General Anders Fogh Rasmussen at the conference "Strengthening the Transatlantic Bond [Online], 2018 [Accessed on December 5 2018]

work upon the improvement of its forces' energy efficiency. In fact, NATO's Energy Security Centre of Excellence, which is based in Lithuania, has committed to this particular challenge, addressing this pillar through various activities.⁶⁴

As it has been made clear, collective defense requires energy supplies. Thus, the first and more important goal for the Allies is to follow a "Smart Energy" policy. This can be achieved through a three – step process⁶⁵. Firstly, standards are essential for NATO's forces to operate. While the Alliance is focused on enhancing existing policies and standards, it is also turning to new standards in order to facilitate energy efficiency. The most important one refers to smart micro grids aiming to support field camps. Micro grids are small-scale but modern versions of the centralized electricity system, achieving mainly carbon emissions reduction, cost reduction and diversification of energy sources. Smart micro grids are considered an important solution for reducing fossil fuel consumption, while they require small effort and cost⁶⁶. Furthermore, the proposal for the establishment of a specifically aims to facilitate this project, with a wider role to contribute to the collection of data⁶⁷. Another way to enroll Smart Energy in the Alliance's policy is a program via NATO's Science for Peace and Security Initiative (SPS). In general, the SPS Programme promotes practical cooperation between scientists, experts and governments of NATO Allies and Partners and it focuses on technological innovation,

⁶⁴ NATO review, NATO's Energy Security Agenda [online], Accessed 7 December 2018, Available at : <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/nato-energy-security-agenda/en/index.htm>

⁶⁵ Susanne Michaelis, How NATO is making progress in energy efficiency for military forces, 27 February 2018 [Online], Accessed 5 December 2018, Available at: <https://eyvor.org/how-nato-is-making-progress-in-energy-efficiency-for-military-forces/>

⁶⁶ Journal of Energy Security, *Microgrids: A Smart Defence Based NATO Contribution to Energy Security* [Online], 2018 [Accessed on 6 December 2018], Available at: http://ensec.org/index.php?option=com_content&view=article&id=390:microgrids-a-smart-defense-based-nato-contribution-to-energy-security&catid=130:issue-content&Itemid=405

⁶⁷ Science for Peace and Security Programme [Online], 1958, Accessed December 6 2018, Available at: https://www.nato.int/cps/en/natohq/topics_85373.htm

data sharing and funds scientific research.⁶⁸ This project of the SPS Programme is committed to create a NATO camp planning model to enhance energy efficiency and reduce the life cycle management costs. In addition, if energy is recognized as a “Minimum Capability Requirement”, integrating Smart Energy into NATO activities would be relevant with NATO Defence Planning Process (NDPP). This would lead Energy Efficiency to integrate into NDPP activities, which could turn out to be extremely effective for the importance of the issue across the whole Alliance.

The second step of the process focuses on data sharing and enhancement of practices. Smart Energy has attracted many fans and more experts arise from member-states. This community is the same that came through with the Green Defence Framework, the Policy of Power Generation for Deployed Force Infrastructure and has gained growing involvement by NATO’s Military Committee. Energy Efficiency behavior training will be a part of NATO’s training program, since the courses that focus on the topic are evolving rapidly⁶⁹.

The third and final step is the involvement of relevant industries. A similar example was the exercise “Capable Logistician (CL-15)” in Hungary, which featured 14 companies who presented their energy efficient proposals⁷⁰. NATO’s role has to be expanded since has been operating as an intermediate between states and companies. As it is known, technological innovation was firstly observed in the military and later on it became available for the everyday life. When it comes to Smart Energy though, the private sector may already have the assets that would make the difference in the military. This means that within NATO there are opportunities that industries should and can take advantage of.

⁶⁸ Science for Peace and Security Programme [Online], 1958, Accessed December 6 2018, Available at: https://www.nato.int/cps/en/natohq/topics_85373.htm

⁶⁹ Susanne Michaelis, How NATO is making progress in energy efficiency for military forces, 27 February 2018 [Online], Accessed 5 December 2018, Available at: <https://eyvor.org/how-nato-is-making-progress-in-energy-efficiency-for-military-forces/>

⁷⁰ NATO.int, NATO “Smart Energy” exercise gets underway in Hungary [Online], 2018 [Accessed on 7 December 2018], Available at: https://www.nato.int/cps/en/natohq/news_120481.htm

As it is the case with many initiatives, “smart energy” has its own challenges that the Alliance has to face. Firstly, NATO’s bureaucracy could play an important role. Smart Energy finds implementation in a wide network of issues. This means that it would require communication, cooperation and interaction between many working structures of NATO. Secondly, as it was already mentioned, the stakeholder community as far as “Smart Energy” is concerned grows rapidly. Thus, simultaneous coordination and leadership will be a difficult task NATO has to face.⁷¹

NATO works not only to reduce energy consumption but also to save lives. The dependence of the military camps on fossil fuel has also cost the lives (or injured) of 3,000 soldiers between 2003 and 2007 because of attacks in vehicles transporting fuel in military bases. Clearly, those fuel supplies are essential for the operation of the forces, rendering them worth of protection by soldiers. In addition, experiments and researches have indicated that in accordance with climatic conditions, effective energy management coupled with renewable energy technology (such as photovoltaic panels) and other energy-related solutions, like wind power and innovative storage capabilities could render every second fuel convoy unnecessary, thus saving the lives of many soldiers, alongside a reduction of 50-80% of fuel consumption⁷².

8. Recent Developments and Future Challenges

As of 2018, global energy trends have showcased that energy is indeed a matter of security, especially for the North Atlantic Alliance. Whereas it may not ultimately account for an entirely military issue, Energy Security is interconnected with so many

⁷¹ Susanne Michaelis, How NATO is making progress in energy efficiency for military forces, 27 February 2018 [Online], Accessed 5 December 2018, Available at: <https://eyvor.org/how-nato-is-making-progress-in-energy-efficiency-for-military-forces/>

⁷² NATO review, NATO’s Energy Security Agenda [online], Accessed 7 December 2018, Available at : <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/nato-energy-security-agenda/en/index.htm>

other security matters, that it seems unavoidable for NATO to adapt its security policy to emerging challenges.

The most fundamental commitment of the Alliance to develop its Energy Security Agenda and take on a legitimate role towards the issue is demonstrated via the Organization's new Strategic Concept, which underlines the need to *“develop the capacity to contribute to energy security, including protection of critical infrastructure and transit areas and lines, cooperation with partners, and consultations among Allies on the basis of strategic assessments and contingency planning.”*⁷³

Nevertheless, NATO has challenges to face in order to be able to develop a clear and operating policy agenda and to approach energy security as an Alliance rather than at a national and bilateral level. First off, there is hesitation on the part of member states themselves. Energy is broadly perceived as an economic issue and there are concerns that NATO involvement would cause it to become a military one, creating political turmoil,⁷⁴ especially considering the Alliance's presence off the coast of Somalia which among others protects oil transfers. Additionally, many European countries are dependent customers of Russia's energy supply and are hesitant to engage in actions, or even discussion, that would endanger their bilateral partnerships. On another note, European countries have a different perspective on the relation and importance ratio between security of energy supply, environmental sustainability and economic competitiveness, as well as between energy diversification and energy independence.⁷⁵ Last but not least, there needs to be a comprehensive distinction between the role portrayed by NATO pertaining to energy security and the role of other relevant organizations or the European Union.

⁷³ North Atlantic Treaty Organization, Active Engagement, Modern Defense; Strategic Concept for the Defense and Security of the Members of the North Atlantic Treaty Organization[Online] 2010. Available at: https://www.nato.int/strategic-concept/pdf/Strat_Concept_web_en.pdf

⁷⁴ NATO Review, *NATO and energy security* [Online], 2011. [Accessed December 7 2018]. Available at: https://www.nato.int/docu/review/2011/climate-action/energy_security/en/index.htm

⁷⁵ Tamburini, F., NATO's role in energy security: does NATO meet the needs of Member States?, Graduate Research Paper. LUISS Guido Carli. 2009.

Thus far, the Alliance has achieved to arrive at a consensus on its energy security agenda, focusing on partnerships, awareness and protection of infrastructure via best practices sharing and training programs. NATO's evolution of involvement in international energy dialogue is still moderate, yet, it is evident that the Organization not only has value to add, but it also has the power and expertise to generate significant advancement to regional and international energy security.

Finally, sustained discussion with international partners, efforts to improve state resilience and civil preparedness, as well as efforts to improve military energy efficiency and sustainability with advanced technologies takes forward the Alliance's role as a broader and emerging consultative mechanism, reshaping its image as a strictly military organization.

9. Conclusion

Energy security has been established as a crucial issue in NATO's agenda. The topic has already been addressed multiple times in the documents voted by the Alliance and member states have to refer to it continuously. Because of lives lost over energy transfer routes, Russia's hybrid warfare and the dependence of European countries on Russian gas and oil, the global increase in energy demand, the vulnerability of energy infrastructure (often a possible target for terrorist attacks) and the key role of energy for the efficiency of NATO's operations, the Allies are forced not to ignore the importance of the matter. In the 21st century, despite the fact that NATO is more a security organization than an energy organization, the Alliance is obliged to have deeply penetrate in these matters, in order to ensure that it is not threatened with any blind spots. Since energy has become a part of the Alliance's security, this challenge needs to be faced, if NATO desires to fulfill its commitment to enhance its resilience⁷⁶.

⁷⁶ Susanne Michaelis, How NATO is making progress in energy efficiency for military forces, 27 February 2018 [Online], Accessed 5 December 2018, Available at: <https://eyvor.org/how-nato-is-making-progress-in-energy-efficiency-for-military-forces/>

10. Points to be Addressed

1. What are the security implications of recent energy developments?
2. How is the issue of cyber security correlated with energy security?
3. How could NATO stabilize the situation as far as Russia's hybrid warfare is concerned?
4. How will NATO's role be enhanced in the field of energy security? Should it remain modest?
5. In what way could NATO aid European states with energy diversification?
6. What are the next steps NATO needs to consider in terms of partnerships?
7. Is it important for the Alliance reach a consensus upon the approach to energy with view to efficiency and economic competitiveness?
8. Should it be left to national governments to improve infrastructure and improve resilience?
9. What further measures could the alliance adopt to ensure the safety of energy transfer routes?
10. What are the challenges in order for the Alliance to improve its energy efficiency in military operations?

11. Further Reading

1. Aoun, MC. European Energy Security Challenges and Global Energy Trends: Old Wine in New Bottles?, *Instituto Affari Internazionali*, [Online] 2016. Available at: <http://www.iai.it/sites/default/files/iaiwpl503.pdf>
2. Chow, E.C., Kramer, D.J., Kutelia, B., Evgenidze, N. International Energy Forum Conference Report; From Geopolitics of Energy To Energy of Geopolitics, *Konrad Adenauer Stiftung*, [Online] 2016. Available at:

<https://www.eprc.ge/admin/editor/uploads/files/eprc%20energy%20report%2005.pdf>

3. *Energy Security*, NATO MULTIMEDIA LIBRARY [Online]. Available at: <http://www.natolibguides.info/energysecurity>
4. Fu, I., Turn, S.Q., Characteristics and stability of biofuels used as drop-in replacement for NATO marine diesel, *Fuel*, Volume 236(2019), Pages 516-524, Available at: <https://doi.org/10.1016/j.fuel.2018.09.042>.
5. *Geopolitics of Energy*, Council on Foreign Relations [Online]. Available at: <https://www.cfr.org/geopolitics-energy>
6. Jürgens, S. (2019) Changing Patterns in Sino-Russian Energy Relations and Their Implications for European Energy Security. In: Hefele P., Palocz-Andresen M., Rech M., Kohler, JH. (eds) *Climate and Energy Protection in the EU and China*. Springer, Cham
7. Marcovska, N, Duic, N, [Addressing the main challenges of energy security in the twenty-first century – Contributions of the conferences on Sustainable Development of Energy, Water and Environment Systems](#), *Elsevier*. [Online]. Volume 115, Part 3, 15 November 2016. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0360544216315201>
8. Narula K. (2019) Maritime Security and Its Role in Sustainable Energy Security. In: *The Maritime Dimension of Sustainable Energy Security*. Lecture Notes in Energy, vol 68. Springer, Singapore
9. Overland I. (2019) EU Climate and Energy Policy: New Challenges for Old Energy Suppliers. In: Godzimirski J. (eds) *New Political Economy of Energy in Europe*. International Political Economy Series. Palgrave Macmillan, Cham
10. Sovacool, BK. *Energy Security*, Vermont, SAGE Library of International Security: 2014
11. Umbach, F. China's belt and road initiative and its energy-security dimensions, *S. Rajaratnam School of International Studies* (2019), Available at:
<https://dr.ntu.edu.sg/bitstream/handle/10220/47452/China%E2%80%99s%20b>

elt%20and%20road%20initiative%20and%20its%20energy-security%20dimensions.pdf?sequence=1&isAllowed=y

12. Westphal, K. (2019) Germany's *Energiewende*: Climate Change in Focus—Competitiveness and Energy Security Sidelined?. In: Godzimirski J. (eds) New Political Economy of Energy in Europe. International Political Economy Series. Palgrave Macmillan, Cham

12. Bibliography

1. Arnold, JM. *NATO's Readiness Action Plan Strategic Benefits and Outstanding Challenges*. AIR University Strategic Studies Quarterly[Online] Volume 10 Issue 1. [Accessed 4 December 2018]. Available at: https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-10_Issue-1/Arnold.pdf
2. Bucharest Summit Declaration [Online], 3 April 2008, Accessed 5 December 2018, Available at: https://www.nato.int/cps/us/natohq/official_texts_8443.html
3. Framework for Future Alliance Operations [Online], 2018, Accessed 5 December 2018, Available at: https://www.act.nato.int/images/stories/media/doclibrary/180514_ffao18-txt.pdf
4. Geopolitics of Energy and Energy Security, Instituto da Defesa Nacional, 2017 [Online], Available at: https://www.idn.gov.pt/publicacoes/cadernos/idncadernos_24.pdf, Accessed on 4 December 2018
5. Graeber, DJ. Energy news; Five dead in attack on Afghan pipeline project. *UPI*. [Online] 21 May 2018. [Accessed December 3 2018]. Available at: <https://www.upi.com/Five-dead-in-attack-on-Afghan-pipeline-project/4171526903186/#ixzz5ZZxQxv9a>

6. Green Defense Framework [Online], February 2014, Accessed 5 December 2018, Available at: http://www.natolibguides.info/ld.php?content_id=25285072
7. Journal of Energy Security, *Microgrids: A Smart Defence Based NATO Contribution to Energy Security* [Online], 2018 [Accessed on 6 December 2018], Available at: http://ensec.org/index.php?option=com_content&view=article&id=390:micro-grids-a-smart-defence-based-nato-contribution-to-energy-security&catid=130:issue-content&Itemid=405
8. Merdan, E. Renewable energy in the age of cybersecurity. *AA Energy*. [Online] 21 June 2018 [Accessed 5 December 2018]. Available at: <https://www.aa.com.tr/en/energy/analysis/renewable-energy-in-the-age-of-cybersecurity/20575>
9. NATO Energy Security Center of Excellence, *Courses; Energy Security Strategic Awareness Course* [Online]. 2015. [Accessed 2 December 2018]. Available at: <https://www.enseccoe.org/en/courses/211>
10. NATO Multimedia Library, *Conflict Prevention and Diplomacy*. [Online] 2017. [Accessed 3 December 2018]. Available at: <http://www.natolibguides.info/conflictprevention>
11. NATO Multimedia Library, *Energy Security* [Online]. 2018. [Accessed November 29 2018]. Available at <http://www.natolibguides.info/energysecurity>
12. NATO Review, *Energy Security; What's at stake?* [Online]. 2016. [Accessed 5 December 2018] Available at: <https://www.nato.int/docu/review/2016/Also-in-2016/nato-energy-security-baltic/EN/index.htm>
13. NATO review, *NATO's Energy Security Agenda* [online], Accessed 7 December 2018, Available at : <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/nato-energy-security-agenda/en/index.htm>
14. NATO.int, *Counter-piracy Operations*, Available at: https://www.nato.int/cps/ie/natohq/topics_48815.htm

15. NATO.int, The Energy Dimensions of Russia's Annexation of Crimea [Online], 2018 [Accessed on 5 December 2018], Available at: <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/Ukraine-energy-independence-gas-dependence-on-Russia/EN/index.htm>
16. NATO.int, *NATO "Smart Energy" exercise gets underway in Hungary* [Online], 2018 [Accessed on 7 December 2018], Available at: https://www.nato.int/cps/en/natohq/news_120481.htm
17. NATO.int, NATO Defence Planning Proces [Online], Available at: https://www.nato.int/cps/en/natohq/topics_49202.htm?fbclid=IwAR1U3BZIZt_x_ey8EJ_25oxfAh7hWHLI-KYqk2LYRthfYXl6fxfo0YJ5Dbc, Accessed on 4 December 2018
18. North Atlantic Council, *NATO's role in Energy Security; Evolution*[Online]. 2018.[Accessed 30 November 2018]. Available at:https://www.nato.int/cps/en/natohq/topics_49208.htm#
19. North Atlantic Treaty Organization, *Civil Preparedness*. [Online] 2018. [Accessed 3 December 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_49158.htm
20. North Atlantic Treaty Organization, Factsheet; NATO's Readiness Action Plan [Online] 2016. [Accessed December 2018]. Available at: https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2016_07/20160627_1607-factsheet-rap-en.pdf
21. North Atlantic Treaty Organization, *Topics; Readiness Action Plan*. [Online] 2017. [Accessed 4 December 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_119353.htm
22. North Atlantic Treaty Organization. *Topics; Resilience and Article 3*. [Online] 2018. [Accessed 4 December 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_132722.htm
- 23.¹ NATO.int, *Wales Summit Declaration* [Online], 2018 [Accessed on December 5 2018], Available at: https://www.nato.int/cps/en/natohq/official_texts_112964.htm

24. Parfitt, T. Russia turns off supplies to Ukraine in payment row, and EU feels the chill. *The Guardian [online]*. 2 January, 2006. [Accessed November 28 2018]. Available at: <https://www.theguardian.com/world/2006/jan/02/russia.ukraine>
25. Resolution 372: Energy and Security [Online], 18 November 2008, Accessed 6 December 2018, Available at: <http://www.nato-pa.int>
26. Rughle, M. and Tracimavicius, L. Cyber attacks are the new challenge for renewable energy. *Politico*. [Online] 28 January 2018. [Accessed 5 December 2018]. Available at: <https://www.politico.eu/article/opinion-cyberattacks-are-the-new-challenge-for-renewable-energy>
27. Science for Peace and Security Program [Online], 1958, Accessed 6 December 2018, Available at: <https://www.nato.int/cps/en/natolive/78209.htm>
28. Strategic Concept For the Defence and Security of The Members of the North Atlantic Treaty Organisation; “Active Engagement, Modern Defence”. 25 November 2010. [Online]. [Accessed 28 November 2018]. Available at: <https://www.nato.int/lisbon2010/strategic-concept-2010-eng.pdf>
29. Susanne Michaelis, How NATO is making progress in energy efficiency for military forces, 27 February 2018 [Online], Accessed 5 December 2018, Available at: <https://eyvor.org/how-nato-is-making-progress-in-energy-efficiency-for-military-forces/>
30. The Energy Charter Treaty and Related Documents [Online], 2004, Accessed 6 December 2018, Available at: <http://www.ena.lt/pdfai/Treaty.pdf?fbclid=IwAR2qvFhxBfT2tY3Dlry4Wc8dWpb50t-g9Jp2Ufu8YRtkuxQdENMEFurhBc>
31. *The North Atlantic Treaty*, 4 April 1949. [Online]. [Accessed 30 November 2018]. Available at: https://www.nato.int/nato_static_fl2014/assets/pdf/history_pdf/20161122_E1-founding-treaty-original-treaty_NN-en.pdf
32. Understanding Russian “Hybrid Warfare” and What Can be Done About It, The Rand , 2017 [Online], Available at:

https://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT468/RAND_CT468.pdf, Accessed on 7 December 2017

33. World Energy Council. *The road to resilience: Managing cyber risks* [Online]. 2016. [Accessed 5 December 2018]. Available at: https://www.worldenergy.org/wp-content/uploads/2016/09/20160926_Resilience_Cyber_Full_Report_WEB-1.pdf
34. Col. Bagdonas, G. *Role of NATO in Supporting Energy Security and Enhancing Resilience of Critical Energy Infrastructure*. Director, NATO Energy Security Center of Excellence, 2018.
35. Col. Bagdonas, G. NATO Energy Security Center of Excellence. [Online]. 2016. [Accessed 29 November 2018]. Available at: [file:///C:/Users/forexsection/Downloads/NSF2016_v17_n12_4_Gintaras_Bagdonas_Patricia_Orglerova%20\(2\).pdf](file:///C:/Users/forexsection/Downloads/NSF2016_v17_n12_4_Gintaras_Bagdonas_Patricia_Orglerova%20(2).pdf)
36. Emerging Security Challenges Division. *Portal*. [Online]. 2010. [Accessed November 29 2018]. Available at: <https://esc.hq.nato.int/default.aspx>
37. Energy Charter Secretariat. *International Energy Security: Common Concept for Energy Producing, Consuming and Transit Countries* [Online]. 2015. [Accessed 5 December 2018]. Available at: https://energycharter.org/fileadmin/DocumentsMedia/Thematic/International_Energy_Security_2015_en.pdf
38. European Union, *Factsheet; EU-NATO Cooperation*. [Online]. 2018. [Accessed 2 December 2018]. Available at: https://cdn5-eeas.fpfis.tech.ec.europa.eu/cdn/farfuture/otambGc7_PZ7cDdMdQqQki4M3aTBiO6-efph8-K1vFI/mtime:1542899750/sites/eeas/files/eu-nato_cooperation_factsheet.pdf
39. Grubliauskas, J. NATO's energy security agenda, *NATO Review Magazine*. [Online]. 2015. [Accessed 2 December 2018]. Available at: <https://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/nato-energy-security-agenda/en/index.htm>

40. International Energy Agency. Topic; What is energy security?[Online] 2018[Accessed on 29 November 2018]. Available at: <https://www.iea.org/topics/energysecurity/whatisenergysecurity/>
41. *Joint Declaration on EU-NATO Cooperation by the President of the European Council, the President of the European Commission, and the Secretary General of the North Atlantic Treaty Organization*, Brussels, 10 July 2018. [Online]. [Accessed 2 December 2018]. Available at: https://www.consilium.europa.eu/media/36096/nato_eu_final_eng.pdf
42. NATO Energy Security Center of Excellence. *Enhancing Cooperative Energy Security*. [Online]. 2017. [Accessed 29 November 2018]. Available at: https://www.enseccoe.org/data/public/uploads/2017/12/nato_ensec_coe_brochure_web.pdf
43. NBC.com, Ten Years of Russian Cyber Attacks on Other Nations [Online], 2018, [Accessed on 5 December 2018], Available at: <https://www.nbcnews.com/storyline/hacking-in-america/timeline-ten-years-russian-cyber-attacks-other-nations-n697111>
44. *North Atlantic Council Riga Summit Declaration*, 29 November 2006. [Online]. [Accessed November 29 2018]. Available at: https://www.nato.int/cps/en/natohq/official_texts_37920.htm?selectedLocale=en
45. North Atlantic Council, *NATO's role in Energy Security; Evolution* [Online]. 2018. [Accessed 30 November 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_49208.htm#
46. North Atlantic Treaty Organization, *Collective Defense – Article 5*, [Online]. 2018. [Accessed 29 November 2018]. Available from: https://www.nato.int/cps/en/natohq/topics_110496.htm
47. North Atlantic Treaty Organization, *New NATO division to deal with Emerging Security Challenges, Press Release*. [Online]. 4 August 2010 [Accessed 29 November 2018]. Available at: https://www.nato.int/cps/en/natohq/news_65107.htm

48. North Atlantic Treaty Organization, Strategic Concepts.[Online]. 2018. [Accessed November 28 2018]. Available at: https://www.nato.int/cps/en/natohq/topics_56626.htm
49. North Atlantic Treaty Organization, *The consultation process and Article 4*. [Online]. 2016. [Accessed 2 December 2018]. Available at: https://www.nato.int/cps/su/natohq/topics_49187.htm
50. North Atlantic Treaty Organization. *NATO Secretary General welcomes cooperation with the International Energy Agency* [Online]. 2015. [Accessed 2 December 2018]. Available at: https://www.nato.int/cps/ie/natohq/news_117616.htm?selectedLocale=en
51. Rughle, M. and Tracimavicius, L. Cyber attacks are the new challenge for renewable energy. *Politico*. [Online] 28 January 2018. [Accessed 5 December 2018]. Available at: <https://www.politico.eu/article/opinion-cyberattacks-are-the-new-challenge-for-renewable-energy/>
52. Ruhle, M. NATO and energy security, *NATO Review Magazine*. [Online]. 2011. [Accessed 2 December 2018]. Available at: https://www.nato.int/docu/review/2011/climate-action/energy_security/en/index.htm
53. Shea, J., Energy security: NATO's potential role, *NATO Review*. [Online]. 2018. [Accessed 30 November 2018]. Available at: https://www.nato.int/docu/review/2006/NATO-Transformation/energy_security_potential_role/EN/index.htm
54. Tamburini, F., *NATO's role in energy security: does NATO meet the needs of Member States?*, Graduate Research Paper. LUISS Guido Carli. 2009.
55. *The North Atlantic Treaty*, 4 April 1949. [Online]. [Accessed 30 November 2018]. Available at: https://www.nato.int/nato_static_fl2014/assets/pdf/history_pdf/20161122_E1-founding-treaty-original-treaty_NN-en.pdf