Taser or a shock collar?

Energy as a weapon and interdependence in the Ukraine crisis 2014-2015.

Dennis Palij Bråten

Master's Thesis

Department of Political Science

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Abstract

The thesis seeks to advance the understanding of the ‘energy weapon’, by providing explanations on how and under what conditions states can use energy as a tool in conflicts. The literature on the topic is filled with several controversies, stemming mainly from the divides between realist and liberalist theories in International Relations. Thus, research that may contribute to the debate, -will help us to gain a more profound understanding of International Relations as well. The thesis suggests that the research has generally avoided the ‘hybrid’ mode of conflict when studying these questions. The study concentrates on the context of the Ukraine Crisis, since this conflict has been said to incorporate hybrid characteristics and includes an ‘energy weapon’ in the form of Crimean ‘blackout’ in November 2015.

The thesis begins by reviewing the concept of the ‘energy weapon’ itself alongside the theoretical traditions that guide different views. In this part, the thesis also introduces the concepts of ‘hybrid warfare’, ‘energy security’, and ‘securitization’, which help to conduct the analysis. The analysis is conducted through explaining-outcome process tracing studying the period from annexation of Crimea in 2014 to Desember 2015.

The findings suggest that the ‘energy weapon’ use and conditions are supported by a variety of factors, some general and some context-specific. The Crimean ‘blackout’ turned out be an instance of ‘energy weapon’, but spurred by non-state actors. However, also several other ‘energy weapons’ were identified during the investigation. The findings suggest that the ‘energy weapon’ turns out to be more of a “shock collar” than a “taser”. Interdependence, mode of conflict, and ‘securitization’ rhetoric are presented as the most important aspects that should be included in the debate on energy as a tool in conflicts.

Preface

This thesis came about during a fascinating course at the University of Oslo, called International Energy Politics. After learning more about the subject, I became increasingly captivated by the different ways energy issues were managed by states and shaped international relations. Having a background from Ukraine with family in Russia, the ongoing conflict quickly received my attention. Accordingly, the master thesis allowed me to combine a study of this conflict with my interest in energy politics. From the assumption that I knew a great deal, I quickly realized that my knowledge was very limited, encouraging me to continue the research and expose activities behind the scenes. After this journey, I can definitely say to have gained some knowledge. I am thankful for having the opportunity to share these discoveries with others.

The process has not always been painless. Therefore, I would like to praise my life partner, Eva Lena, who has always been there supporting me. Each day, you inspire me to improve and reach higher goals. For that, I am forever grateful. I would also like to thank my family and friends, who have been invaluably helpful and enabled me to reach this milestone.

Special thanks should be given to my skillful and charismatic advisor, Kacper Szulecki. The thesis would not have been possible without you and your passionate approach to the subject. Your help and expertise have guided me and provided amazing assistance. God knows how many times you surprised me with a great, fast, late-night response. I wish you all the best and hope that many students will have the opportunity to be educated by you in the years to come.

All errors are exclusively my own.

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1 Introduction

In March 2014, Russia annexed Crimea despite objections from the world community. With that course of events, Ukraine lost a large part of their oil & gas production, together with storage capacity as Russia took control over "Chornomornaftogaz". This company accounted for a significant part of Ukraine's energy supply. An even worse condition for Ukrainian energy production was created by the events that took place in the eastern Ukraine shortly after the annexation of Crimea. Russian separatists created turmoil in the region, leading to a violent conflict that continues until this date (Holm 2015). Eastern parts of Ukraine, the main location for Ukrainian industry capacity, have been more or less inactive since 2014. The coal mines and other energy supplies have dwindled. With Ukrainian electricity system being highly dependent on the coal in the area, the result was even less maneuverability for the Ukrainian leadership in a time of political disorder. The relationship between energy and the crisis indicated an interesting link. In November 2015, a major electricity 'blackout' occurred in Crimea[1]. This event led some observers to claim that Ukrainian government used electricity as a weapon to coerce Russia and punish the pro-Russian Crimean authorities. But were they right?

In international politics, a lot of attention has been given to the notion of the so-called 'energy weapon'. Since the late 19th century, regular observers, politicians, and academics have been discussing whether and how oil and gas can be used to extract political concessions, often arriving at different conclusions (Smith Stegen 2011, 6506). For political scientists, the discussions have resulted in some controversies within the literature.

First, the literature has struggled to define this concept. Karen Smith Stegen (2011, 6511-6512) has partly resolved this issue by proposing a practical approach to the topic, stating that the concept of an energy weapon must be split in different stages, incorporating weapon capacity, application[2], and successfulness. Secondly, Smith Stegen suggested that the energy weapons really are a way to coerce and punish the adversaries, subsequently providing some conditions for their success and failure. Ariel Cohen (2015, 3) goes even further, suggesting that energy weapons can be used very effectively by some states to "*impose foreign policy*

[1] Four lines that transmitted electricity to Crimea from mainland Ukraine were physically damaged on 20-22nd November.
[2] The process of acquiring capacity and applying it as a weapon is termed *weaponization* throughout this thesis.

agenda" upon others. Conversely, Van de Graaf and Colgan (2017, 63) claim that energy weapons are often fictional and unwieldy. The same view applies to Skalarema (2015, 4), who sees energy weapons as having more cost than utility, which makes them very rare and inoperable.

Thirdly, the theoretical schools are somewhat unaligned on the issue of international energy relations, creating a deep-seated dilemma. Realists generally perceive energy relations as another way to exert influence and power, seeing all energy connections as potential energy weapons, causing insecurity and enhancing conflict. The liberalists hold a somewhat different opinion, claiming that energy relations will create a relationship between parties that promote cooperation and prevent application of energy weapons, ultimately increasing security and deescalating conflicts (Nance and Boettcher 2017, 2-3).

Thus, the main research questions thesis addresses are: *How and under what conditions can states use energy as a tool in conflicts?*

The usual studies of the energy weapon are limited to geopolitics and international disputes. However, a discussion about energy weaponization could be advanced by incorporating other modes of conflict. The thesis tries to fill this research gap and thereby contribute to resolve some controversies. A mode of conflict that have received little attention in terms of energy weaponization is 'hybrid warfare' (Reichborn and Kjennerud 2016). The concept places emphasis on a mode of conflict that is multi-layered. The warfare becomes something that operates in different spheres and by various means. Energy sphere seems to be a possible battlefield for such warfare, with energy weapons as the medium of struggle. The purpose behind this kind of warfare is to weaken the adversary's resistance to coercion by lessening their capacities and the will to fight back, basically making the conflict costly and surrendering sensible (Ibid).

Considering the concept of hybrid warfare, it becomes clear that energy weapon does not require "bomb shell events" to be applied as a means for extracting concessions. Rather, it can be used over time to punish an adversary and decrease their resistance against coercive moves of the wielder. Thus, the thesis argues that energy weapon is *not a "taser" but a "shock collar".* In this notion lies an understanding that energy weapon assumes a somewhat different character compared to previous scholarly discussions.

Energy weapon is a “shock collar” in a sense that it does not need to be used at all, merely resembling some minor threat. When used, the purpose of a “shock” is typically to subdue and revert unwanted behavior. Nonetheless, the collar could potentially be adjusted to ‘punishment’ setting, resulting in some damage. This way of thinking about the energy weapon makes it a disciplining process, ending when the collar is taken off or when the parties are satisfied with the state of relationship. Alternatively, a “taser gun” metaphor makes energy a more prominent weapon, meant to produce quick results, paralyzing the adversary, and coercing him to suppression. Initial expectation is that an energy weapon is large, with a high probability to stun the adversary and end the dispute.

Whereas the “shock collar” metaphor does not suggest a high degree of dispute, the “taser” metaphor does. In international relations, the latter implies that the relationship between parties must be very tense before an energy weapon is used. The former metaphor is somewhat more progressive, responding with small “shocks” to lesser behavioral deviations, and growing gradually in line with discrepancy.

The energy weapon as a means in hybrid warfare necessitates two conditions. One is the energy link between parties. In this case, the energy link is represented by a systemic connection in electricity and gas. This thesis argues that energy interdependence can create an essential ‘bond’ between the parties in a relationship. The thesis argues further, much in line with the liberal perspective, that if an energy ‘bond’ between the countries is strong and mutual, the parties may abstain from applying the energy weapon and decrease its size.

Moreover, a strong ‘bond’ requires each party to perceive its own circumstances as safe and secure. These circumstances are made possible by the state of *energy security*. In line with this reasoning, it is important to explain what energy security is and how this state can be improved. A somewhat related topic is the issue of threat perceptions. Such perceptions can be guided by the process of *energy securitization*, were some actors frame energy as existentially vital and enable exceptional means to handle it. It is further argued that the interplay between the concept of weaponization and securitization guides actions and reactions of states, conceivably affecting the relationship itself. Therefore, this potential interplay needs to be discussed.

Second condition of hybrid warfare is that a relationship between parties must involve some kind of struggle or dispute that authorizes application of the energy weapon. A “louder” and

more prominent dispute should therefore result in larger weapons being used. Thus, the degree of conflict and disagreement becomes important.

Contrary to the assumptions, the Ukrainian Crisis appears as the case that refutes the arguments of the thesis. From the initial glance, the two states are certainly involved in some kind of a conflict and dispute. The conflict has been said to have several hybrid warfare characteristics, and the states share many energy links (Magda 2015). However, the Crimean 'blackout' suggests that only one large energy weapon was used, resembling what I previously labeled a "taser".

One might presume that the 'blackout' is an example of the energy weapon. However, this presumption should be scrutinized and supported by empirical findings to be valid. Accordingly: *Was the 2015 'blackout' an example of an energy weapon use?* Given that this presumption passes empirical scrutiny, some other questions emerge: *How was this energy weapon used? Why was it used? What effects did it have? Why did it occur so late in the conflict?* And finally: *Is this the only instance of the energy weapon during the period?*

To answer the questions, this thesis conducts a process-tracing of the conflict, analyzing events from the annexation of Crimea an until December 2015. More precise, the research is conducted through explaining-outcome process-tracing and mainly by textual analysis (Blatter and Blume, 2008, 319; Beach and Pedersen 2013). Explaining-outcome process-tracing seeks to uncover the mechanism that helps to explain and understand a particular outcome by searching for evidence which are sufficient to get at the particular result, often through an eclectic approach (Beach and Pedersen 2013, 63-64). Analyzing the Ukrainian and Russian actions through the proposed theoretical glasses and tracking their manifestations in real-life events will be essential to draw inferences and determine the mechanism in motion.

In line with many qualitative analyses, some problems regarding the reliability of the data do exist. This is especially the case here, since media coverage was used during the conflict study. Therefore, propaganda and incorrect information are possible issues. These challenges were handled by triangulating information from both parts of the conflict and balancing it against each other in search of accurate observations. Conveniently, the author possesses knowledge of Russian, Ukrainian as well as English language, which enabled him to get hold of a variety of sources and contrast them against one another. When possible, data gathering was assisted by information from large energy operators, ministries, and international organizations.

The thesis is divided into 6 parts. Chapters 1and 2 are mainly theoretical, discussing the central concepts, theoretical approaches, and conditions within which energy weapon is assumed to manifest. The concept of energy weapon, hybrid warfare, energy security, and securitization is connected to the main theories of International Relations, providing some explanations and assumptions. The theory provides a framework which is used during the analysis.

Chapter 3 reflects on the research design of this study by explaining the process-tracing method and textual analysis. Some concerns and issues are deliberated. In the end, some expectations and operalizations are made. Chapter 4 provides a deeper background about the Ukrainian energy system, mainly concentrating on electricity and links with Russia. Chapter 5 is comprised of the analysis, dividing the period into into four stages. Analysis is concluded by a discussion that sums up the evidence. Chapter 6 is comprised of a larger discussion where the findings are presented and tied to theory. The research questions are answered. Chapter 7 presents the most important findings and concludes the thesis.

Main findings appear to be in line with the assumption that energy weapon is incremental and progressive, linked to the relationship between the adversaries in the conflict. Several instances of energy weapon were detected throughout the period. In line with the logic of hybrid warfare, the energy weapon can be applied rather effectively to pacify the adversary and increase the costs of the conflict. However, the 'bond' between adversaries significantly restricted the size of energy weapons. Other contextual factors and conditions were identified in the process, many of which inhibited application of energy as a weapon.

The Crimean 'blackout' *was* an instance of energy weaponization. However, it seemed to be triggered by non-state actors. The fracturing of the initial 'bond' between the two states following the event spurred several energy incidents and "shocks", weakening the relationship between the adversaries and increasing the concurrent conflict level.

2 Theory and framework

This section serves to establish three main points. The first point is to grasp why energy relations are significant in international politics and conflictual situations. The second clarifies the process of how energy becomes a tool for coercion. The third point elucidates why and how some events are perceived as energy weapons, while others are not.

This chapter begins with the discussion of energy weapon and 'hybrid warfare' as the mode of conflict. After these concepts are established, the chapter elaborates further on the state of energy security and how it can be framed by policy elites. The latter is viewed in terms of energy securitization, requiring a discussion of the concept. It then proceeds to the underlying dilemma of energy relations, with realist and liberalist approaches as two main poles. Some latest takes on the issue and the case itself are incorporated within this debate. In culmination of the chapter, a theoretical frame is built to guide this study.

2.1 Role of energy in conflicts

To comprehend how and why energy systems can be significant parts in a conflict, one may turn to Månssons (2016, 40) doctoral work. There he presents three groups relating energy and conflicts. The first category sees energy system as a goal in a conflict, with referents having incompatible aims concerning control over, and access to, some part of the energy chain.

The second category Månsson (2016, 40-41) presents is energy system as the cause of a conflict. In this case, energy systems may spark conflicts in different ways, for instance through local abundances or environmental degradation that spur energy scarcity. Energy scarcity may also affect the economy through undesirable interactions between energy systems and food prices, leading to a conflict (Victor 2013, 458).

The third category regards energy systems as a means to achieve other goals a referent may have. This category includes willful disruptions and threats to the energy flow by either producer, supplier or a third party. This category will from now on be termed as the "energy weapon".

Månssons category of energy as a means fits remarkably well to address the questions of this thesis, since energy systems significance, complexity and vulnerabilities makes a perfect target for an adversary. Being the main attention of the thesis, this category needs to be discussed more thoroughly.

2.1.1 The energy weapon

Thus, an energy system as a means in conflict is connected to the concept of energy weapon. This concept is carefully reviewed in the paper of Karen Smith Stegen (2011). Smith Stegens' paper presents four analytical stages (2011, 6506-6507), where each stage requires fulfillment to transform energy into a successful weapon in international relations. The energy weapon is understood as a means of political leverage that serves a desired outcome by coercing or punishing an addressee.

Van de Graaf and Colgan (2017, 1) understand this term more narrowly, labeling it as *"one state's threat or action involving energy resources to compel or deter another state (mainly) in the short-term"*. This approach seems to leave out some nuances. For instance, the actions not necessarily involving resources, but still targeting the energy system. Consequently, this definition may fail to detect relevant instances where energy is applied as a weapon.

The first three stages in Smith Stegen's model for wielding an energy weapon are: *"state consolidation of resource; state control over transit routes; implementation of threats, price hikes, and disruptions within an energy system to further political objectives"* (2011, 6506-6507). The adapted term for this part was called weaponization. This term is appropriate because it illuminates the process of obtaining capacity that is necessary for formation and intentional application of an energy weapon, together with actual weapon-wielding.

One implicit notion in this stage division is a connection, a relationship between parties in a given energy system. Without such a connection, the concept becomes obsolete. Hence, the relationship stands out as an important determinant regarding what part of the energy system is weaponized and how.

The weaponization could partially integrate energy securitization as an underlying compound that nourishes weaponization by affecting the selection of parts to be included in the structure of an energy weapon. Securitization is understood as a framing of an issue as existential for a referent's security and provision of means to handle it. The concept is elaborated later.

The last stage in the model is concerned about political reactions from targeted adversaries, determining whether a weapon was applied successfully and served its purpose. Assessment of success and failure depends on the political response to threats and modification of behavior (Smith Stegen 2011, 6510). Grave threats require another response than empty threats and bluffs (Ibid, 6512). To understand the modification of behavior, political threat perceptions together with particular behavior seem significant. The weapon may affect addressees' sufficiently to spur a reaction that cause and intensify securitization, eventually forming addressees' response, and ultimately altering the conflict path. The approach enables securitization of energy to be studied as an extension of Smith Stegen's model. Even though an energy weapon may offshoot securitization in other areas, the attention in this thesis is drawn towards energy matters.

Smith Stegen's focus is a state's control with supplies of energy and their utilization to obtain concessions. However, it is important to add that this formulation does not exclude a state's alteration of energy demand to coerce a supplier, even though it is not the concern of Smith Stegens paper. A slight adjustment and adaptation of the model may thus suffice to assess how energy can be applied as a weapon in the hands of a consumer towards a supplier.

In this thesis, the Smith Stegen's concept is split into a weaponization part and accomplishment. An alternative modification of the energy weaponization concept that is better suited to capture the aspects of interest is proposed here as: *"Utilization of energy as a tool by which one party seeks to modify the behavior of another, derived from an energy relationship between the parties"* (Szulecki, 2016). Through this logic, energy weaponization becomes a component that can be significant in conflicts. The accomplishments of weaponization will rely on its success or failure to achieve intended behavioral change.

To sum up, this discussion aimed to elucidate what an energy weapon is, why it is used and with what outcomes. It was argued that weaponization acts as a driver that allows one party within an energy system relationship to apply energy as a tool against others, with subsequent results. However, the discussion also implies that energy is already an element of state security, making it an issue deserving further attention.

2.1.2 Energy as part of hybrid warfare

Reichborn-Kjennerud and Cullen (2016) claim that 'hybrid warfare' has since 2005, been used as a term to describe a combination of unconventional and conventional use of force or coercion, by a state as well as non-state actors. The term seems to expand the military domains and the spatial battlefield to non-military means and the threats of force. This is usually done by including cyber warfare as a new element, and pointing to intense rivalry in spheres such as diplomacy, economy, and information. Nevertheless, the possibility of escalation to full-blown military confrontation remains an imperative feature of this kind of warfare (Reichborn-Kjennerud and Cullen 2016).

Whereas conventional warfare is focused on diminishing the adversary's military capacity, the researchers note that hybrid warfare may be as much about a cognitive conquest. The task becomes to weaken the adversaries' will and ability to resist a coercive move (Ibid). The ways to achieve this task range from cyber, economic, diplomatic, and informational persuasion to employment of paramilitary-, special-, and conventional forces. The approach is meant to create ambiguity and paralyze the adversary to gain an upper hand and achieve some end (Bredesen and Reichborn-Kjennerud 2016). The form of conducting conflict and pressuring opponents through different means is not new, and the hybrid warfare concept may be regarded as simply an extension of traditional warfare and relabeled as 'contemporary complex warfare' (Haaland Matlary and Heier 2016, 8-11).

The emphasis on the blurred distinction of peace-war relations and the deployment of various synergistic measures makes it a suitable concept to analyze the concealed mechanisms in conflicts. This thesis adds to the concept of hybrid warfare by highlighting energy as a central measure, partly supported by the adoption of the "energy clause" in Joined Framework for Countering Hybrid Threats (EC 2016). Conflicting actors could be prone to utilize energy as a tool due to enormous consequences when a system is distressed. The awareness is based on the common perception of energy as "the lifeblood of society" and one of the most fundamental parts of our activities. Furthermore, this mode of conflict seems to promote a somewhat unique way of applying energy as a means, thereby altering its traditional charasterics. In this mode, energy becomes as tool for gradual pressure through a concealed subjugation process. However, the idea of an energy weapon with this logic is not strictly limited to hybrid warfare, making it applicable to other contexts as well.

2.2 Energy security

Many researchers have come to acknowledge that energy security is a challenging concept. Several studies have tried to define and capture the essence of energy security, yet there exists no clear agreement on a definition (Aalto 2014, 761; Ang 2015, 1081; Bahgat 2011, 213; Brauch 2015,171-172). However, one must somehow address this issue in order to study its underlying mechanisms. This thesis draws on several strains of research and tries to adjoin them. The conceptualization draws extensively on the research by André Månsson (2016), as well as on contributions by Aleh Cherp & Jessica Jewell (2014).

One way to address energy security is to frame it as a provider of energy system services. The emphasis is on energy services because systems are only good for what they provide to people and not for their own inherent value (Månsson 2016, 15). Energy system can be defined as *"a group of interacting, interrelated, or interdependent elements forming, or regarded as forming, a collective entity"* (Hughes 2012, 222). An energy system may consist of several energy bases, each with its respective connection to the energy chain. The energy chain can be split into several steps, from resource extraction to transportation and further refining, to storage and transmittance, and finally to the end-use by a consumer. This long chain is often necessary to make a source useful to people, for instance delivering electricity to power a fridge by the extensive transformation of a mineral like coal (Bradshaw 2013, 3-4).

Accordingly, downstream disturbances in the whole energy chain can be harmful to end users, making them potential energy weapons. A disturbance closer to the consumer might be perceived as more severe and disruptive. Several externalities appear when energy affects the industry and other social functions. Their presence entail an additional cost to be placed on the end users and their welfare (Månsson 2016, 15). By discussing the energy system, it becomes simple to comprehend that energy system services are significant to a society and that users wish to secure them from interruptions. On the flipside, the same system sketches out the 'trajectories' of potential energy weapons.

Some scholars studying energy security concept define it as available, accessible, environmentally benign, and reliable supply of energy, which seems as a good starting point (Yergin 1988; Sovacool and Murkherjee 2011, Månsson 2016, 24). Many of them prefer to measure it quantitively through multiple indicators which is operationalized to tap onto these different dimensions. Physical characteristics become the center of attention. However, their approach struggles answering whose security should be important and what threats are central

in the assessment. In addition, mere focus on security of supply may be inadequate to address energy services. The emphasis often fails to capture the interests of energy producers, with their need to sell the available energy and convert it into stable income flow (Dellecker and Gomart 2011, 25).

Several methods may be important to secure the energy system. One such approach is to assess possible technical threats to energy flows, and avert them. This approach is probably the most widespread in the energy security literature. Another approach focuses on more over-all capacity building and development of infrastructural responsiveness to disruptions and sustenance of proper service functions. Important distinction should be made regarding the temporal dimension of vulnerability, whether it is a "blow" that can be handled within a short period, or a "stress" to the energy system that lasts for a longer duration of time (Månsson 2016,17-18). A scheme of this kind should in addition be capable to separate the geographical levels of disruption, be it international, national, regional, or local. As before, the scheme simultaneously sketches out the potential trajectories of the energy weapon.

Another way to define energy security stems from the work of Cherp and Jewell as introduced earlier. They define energy security as "*Low vulnerability of vital energy systems"* (Cherp and Jewell 2014). Their conceptual proposal seems better equipped to handle the myriad of relevant concerns and interests toward the energy system services. The definition does not provide an exact answer regarding what 'low vulnerability' and 'vital energy systems' encompass, allowing the researcher to present their area of study and propose relevant considerations (Månsson 2016, 16). The researcher's own emphasis effectively lowers the level of abstraction and makes the study concrete and comprehensible. The imperative part in this selection process is researcher's openness, transparency, and arguments regarding their choice of essential energy systems and vulnerabilities. The selection can be a challenge, which makes the attention to it even more important, and shall be dealt with later in the thesis.

The definition shows that energy security is not merely a goal, but a fluid state, constantly gravitating towards the lowest possible vulnerability. Each state will therefore try to increase their security in the ways available.

Cherp and Jewell's contribution goes beyond mere quantitative measurement of different parameters and manages to address subjective contributors to security. This approach

emphasizes context in which security is defined and what security considerations are included (Brauch 2015, 157; Kurian and Vinodan 2013, 385). The context consists of referent's interest, belief, position, and experience vis-a-vis a certain threat elements (Månsson 2016, 24-25). The approach is hence better equipped to cover both material and cultural factors that constitute energy security in the relevant circumstance, ultimately providing some answers about the way policy elites and system managers can resist and retaliate an energy weapon.

If one agrees with the approach that energy security considerations stem from energy system vitality and vulnerability, then emphasis still needs to be placed on the temporal dimension as well as geographic and sectoral (energy chain positionality). Also, it is important to keep in mind that both demand side and supply side have security concerns.

One way of maintaining energy system operation can be sustenance of proper functions, referring to usual activity within an energy system. Here one might talk about general development and capacity building to upkeep healthy and durable energy systems that withstand various events that occur under regular circumstances. A maintenance of this sort may typically include all-purpose diversity, flexibility, and diffuse protection of vital energy systems, to achieve a state of safety. This process may therefore be coined safeguarding, rather than securing.

Cherp and Jewell avoid this term and discuss it rather as resilience and resilience perspective (unpredictable risk factors). However, in this thesis energy security is viewed as an overarching concept including both safeguarding and securing. The major aim of securing is therefore to prevent and act upon specific threat awareness, separating it from what I see as safety, a term circumvented by Cherp and Jewell and conflated to security.

Threats may be both of material (actual) and subjective (perceptive) origin. Cherp and Jewell (2014, 419) classify these threats as risks and divide them into different categories by combining the nature and source of the threat[3]. The sources seem to be more aligned with the preventive objective of security. However, they do not exclude the capacity building objective.

Modifying Cherp and Jewells model, resilience is understood in line with Daniel Yergin, whom sees it as reduction of magnitude and/or duration of disruptive events, and presents a combination of four relevant factors. The first is robustness, which refers to ability of

[3] Temporal dimension is originally included as nature of a threat in Cherp and Jewell (2014), but excluded here.

continuous operation in event of shocks. Second is resourcefulness, referring to skillful managing during crisis time. Third is rapid recovery and the fourth is adaptability, referring to historical learning and improvement (Kalicki and Goldwyn 2013, 84).

To comprehend the difference between resilience and prevention one might think of it from two angles. The first being a more passive handling concerning the nature of the threat, whereas the other is more active and seeks to eliminate the source, or origin of a threat. Resilience is thus more concerned with consequences rather than causes of a threat. Another way to separate them could be to label prevention as direct deterrence, and resilience as indirect deterrence.

One example is to act upon a forecast of an extraordinary storm. Since the storm itself cannot be redirected, the resolution would be to cut down trees surrounding major power lines in that area, effectively averting them from falling over and damaging a vital energy system component. Example would be a prevention of a physical natural threat. Contrary, a resilience response to secure the energy system would be to set up response forces in case of trees damaging power lines, having emergency action plans, and providing alternatives to people in case of a 'blackout'.

Another example is dispute with a supplier of oil. Stacking oil barrels in case of emergency, seeking supplementary sources of supply and setting up crisis management to handle emergencies are measures of resilience. Alternatively, preventive securing measures could be to negotiate with the adversary to resolve the dispute and continue cooperation. If that fails, one could counter the adversary's will, and ability to cut supplies, even changing the supplier if possible. The latter example regarding oil is more aligned with this thesis, where the threat source of interest is the political/intentional, fluctuating between physical and economic nature. Table 1 and 2 provide an overview.

Threat source/origin	**Nature of threat**
Natural/Technical	Physical
Political/Intentional	Economical

Table 1: Threat classification. Inspired by Figure 1 in Cherp and Jewell 2014.

Resolution (Purpose)	**Disruption in**	**Temporality**	**Geographical level**	**Energy chain positionality (Sectorality)**
Securing from (Prevention)	Supply	Short-term	International	Exploration/ Extraction
Securing to (Resilience)	Demand	Long-term	National	Mining/ Production
Safeguarding (Safety)			Regional	Refinement/ Transformation
			Local	Storage
				Transport/ Transmission
				End-use/ Application

Table 2: Deconstruction of the energy security concept displaying potential trajectories of an energy weapon. Based on the work of Månsson 2016 in combination with Cherp and Jewell 2014.

The presented classification is rather strict, and must be regarded as a model to clarify our understanding of the concept and arrangements to achieve it. Under factual conditions, these different objectives are necessary less solidified and more interchangeable, adding complexity and making them difficult to separate from each other. The significance of each resolution should be treated due to the specific energy system and the context it operates in, rather than ordination. What follows from this discussion, is that low vulnerability of vital energy systems is comprised of an appropriate amount of different resolutions to handle contextual challenges and potential energy weapons. On the other hand, the discussion shows what energy weapons have a disruptive potential and what is it is possible trajectory.

The way of thinking about security resolutions is somewhat associated to the distinction of negative and positive security. Whereas negative security emphasizes fears and threats that lessen security, positive security gives attention to enablers of security, such as capacity, capability, and trust among adversaries. Immediately, negative security seems to be more aligned with securitization, as it may impact and reinforce security perceptions. However, this is not necessarily the case, for instance when capacity building of a supplier leaves an exporter worse off, causing negative externalities.

2.3 Securitization of energy

An argument this thesis supports, is that material and cultural factors alone are insufficient to comprehend the internal liquidness of the energy security concept. If we assume that energy is important for people due to the services it provides, then people and their intersubjective priorities are constantly adding and subtracting to the conception of what energy security should cover, making it *ipso facto* dynamic (Månsson 2016, 25). The most central role could be prescribed to policy elites, who can frame energy in different ways and shape the direction of energy geopolitics (Nance and Boettcher 2017, 4). Thus, one could assume that a high level of energy securitization will lead to increased application of energy as a weapon in conflicts.

The transition from a non-matter to a matter in the field of energy appears to be the atomic nucleus that forms the element or even the molecule of energy security concept. Such a discursive selection of priorities is termed politicization.

To illustrate politicization one may think of a group of primitive humans that discovered fire as an energy source. As different individuals saw the potential gain from this source in their everyday life and chose to embrace this energy, it became increasingly crucial to keep it from extinguishing, and managing other difficulties related to it. Contrary, another groups may have deliberately abstained from using the source in their everyday life, effectively removing the issue from agenda altogether, keeping it depoliticized.

A somewhat related term, securitization, was popularly introduced through the approach of Copenhagen School, mainly by Barry Buzan and Ole Wæver and Oscar de Wilde (1998), in their proposal for "A New Security Framework". An often-quoted definition by Buzan and Wæver (2003, 491), cited by Guzzini (2011, 330), Taureck (2006, 56), Brauch (2015, 159) et.al, regard securitization as a:

"Successful speech act through which an intersubjective understanding is constructed within a political community to treat something as an existential threat to a valued referent object, and to enable a call for urgent and exceptional measures to deal with the threat."

As noted by Cherp and Jewell (2014, 419), neither vulnerability nor threats are totally objective entities. Instead, they can be viewed as a product of social interactions and intersubjective perceptions, resulting in politicization (Cherp and Jewell, 2014, 419). The sociopolitical process of framing an existential threat, removing it from usual sphere of politics and enabling exceptional measures to handle the threat may be termed securitization

(Guzzini 2011, 335). This turning of an issue into existential security enables the researcher to dive into the fluid concept of security and locate the streams that constitute it. Securitization is central because it answers the most precarious questions regarding what is to be secured, from which threat and sometimes even how it should be done (Månsson 2016,23).

As previously discussed, one must try to distinguish between energy topics that is simply politicized and labeled as security because they are important, and energy topics that are securitized, that is, brought up to a more urgent state which may be termed high security or existential security. This distinction might be a crude, but an alternative way to avoid security as a banal concept, a fear Felix Ciută (2010) expresses in his study.

← *Further Depoliticization*	← *Depoliticization*	← *Desecuritization*
Energy as non-matter	**Energy as political matter (low security)**	**Energy as security matter (high security)**
Politicization →	*Securitization* →	*Further Securitization* →

Table 3: Three states of energy discourse with 6 possible moves. Inspred by securitization literature and Figure 1 in Szulecki's (2016) elaboration on Guzzini (2011).

In relation to energy security, it is obvious that when something becomes existential security and a threat is established, severe measures become available to handle it. Even though many energy systems are vital, some may be framed and perceived as more existentially necessary compared to others. What this means is that we may move beyond "usual" energy solutions and fixes to handle an energy problem, as long as intersubjective perceptions authorize it as existentially important. Exceptional measures are recognized by the moves that go contrary to the intersubjective understanding of politicized energy security norms in each context.

An extreme example might be that a governmental body itself regards and publicly presents a threat as existential. To counter the threat, it decides to deploy a major police force and tax citizens to secure a nuclear station from a terrorist threat. However, the reality could be that this threat was largely a mental construct, obviously unfounded, and most probably spurred by a childish prank. Nevertheless, securitization is not simply an over-reaction. It could also have

an inherent logic, attracting attention and necessary resources to certain issues and legitimizing various actions, possibly even authorizing the use of an energy weapon.

Another important notion is that although a securitizing actor makes a securitizing move on some energy issue, its realization as a security concern depends on audience acceptance of this understanding as appropriate on a given occasion (Nyman and Zeng 2016, 302). More often than not, actors fail to elevate an issue to another level of importance through securitization. Additionally, in instances where audience lacks power to influence politics, it might be political elites themselves that provide acceptance, making it somewhat redundant. Nevertheless, public tolerability, approval and popularity of the securitization moves can reinforce the measures and add legitimacy to their implementation.

In the example of child-prank, it would be quite tough to affect the public perception so drastically that it could legitimize the exceptional counter-measures and convince the audience of its necessity.

The audience of a securitizing move could also be external. In this case, securitization would be used to demonstrate a stance on some issue towards the adversary and enabling exceptional measures to handle the threat.

Recalling Smith Stegens model, it becomes clear that successful application of an energy weapon to extract concession and alter behavior might be of less importance for conflict path compared to addressees' reactions to its utilization. Initially, a triggering of the weapon itself might produce securitization of energy, but depends to some degree on the applied geostrategy. Thus, application of an energy weapon may cause a massive securitization response increasing the conflict, but an issue may also be desecuritized, decreasing or stabilizing the conflict level.

To recall Wigell and Vihma (2016, 612), especially the successful application of covert geoeconomical strategies can prevent securitization moves by a target. Similarly, a failed wielding of an energy weapon can both increase the conflict level and decrease it. A failed application of the energy weapon implies either that a weapon was misplaced or that a target resisted the envisioned change in behavior (Smith Stegen 2011, 6512). A misplaced energy weapon, if understood as such, can create an urge for reciprocity. A successful resistance might for instance be regarded as sufficient protection with no need for securitization, or it may underscore the need for further energy securitization.

The triggering of an energy weapon appears to act as an intermediate in securitization process, in terms of both being a cause of securitization, and a possible amplifier for further securitization. Imperative point to keep in mind is that weaponization, threat perceptions and reactions can have a big impact on the conflict level.

2.4 Energy and Security in International Relations

Energy is crosscutting and complex, making it difficult to handle. The need for large investments and long timespans make it rigid and inert, causing headache both for political and technological activity (Van der Graaf 2013). Energy in international relations is far from a new topic. Energy has been popularized as an issue of national security since early twentieth century (Hughes & Lipscy 2013, 452). Especially the realist tradition has stressed the centrality of energy to national security interests. Morgenthau viewed it as an essential element of national power, while Gilpin emphasized resource competition as a driver for state behavior (Ibid). On the other hand, liberalists generally view energy as a platform for cooperation.

Energy security has been identified as a persistent and a growing problem, affecting states and individuals by highlighting their dependence on resources for everyday activities and welfare. A situation with a growing number of people in the world combined with a pressure for increase in living standards creates a demand for more energy in order to fulfil human needs. Whether a political community lacks energy to sustain its activities or just wants to improve its energy function, it will ostensibly interact with other similar entities, entangling energy with foreign policy and international relations (Collins 2013, 307).

Additionally, the concept relates to a great degree with other security concerns, as economic security, regime security and environmental security. The vitality of energy to military operations, industry and other aspects may lead governments to interfere in standard energy transactions in the name of national security (Dubash and Florini 2011). Furthermore, and perhaps more relevant to this thesis, the increasingly militarized approach by core powers towards energy security may ultimately affect international security and stability (Collins 2013, 307).

The key scope condition for application of an energy weapon is the relationship between parties, built on some sort of reciprocity. Since the most common way to conduct energy

relations between states is by export and compensation, the parties become gradually involved in an interdependent relationship. Hence, the lowest level of interdependence is when one state has an energy demand which another can meet by supplying the neccessity. Both the demand and supply could be disrupted. A higher level of interdependence occurs when both parties have an energy demand which is met by the adversary. In this sense, different levels of energy interdependence may either restrict or facilitate application of the energy weapon. The different theories of international provide some explanations.

2.4.1 The Realist view

The realist views have led to a *geopolitical perspective*, a so called 'strategic' approach to energy, which highlights the geographically fixed and finite nature of energy resources within a world of competing sovereign states (Kuzemko, Keating and Goldthau 2015, 160; Tunsjø 2010, 27). This perspective equates power with resource possession, although emphasizing a coercive and relational nature (Kuzemko 2014, 65). The energy relations become a zero-sum game, and higher interdependence merely enables more energy weapons and possibilities for coercion.

Hence, realist scholars usually perceive resources and interdependence as a sprout for conflict, reinstating neo-mercantilism and intensifying inter-state competition (Kuzemko, Keating and Goldthau 2015, 10; Tunsjø 2010, 27). In line with this reasoning, some researchers have observed that political discourse tends to treat energy interdependence as problematic (Nance and Boettcher 2017, 2). The realist approach comes close to what Ciută (2010, 124) terms a logic war, and what partially resembles the preliminary perception of actor mind frames in the analysis.

The search for power in realist tradition implies that states are interested in controlling the energy policy of other countries through manipulation, either by directly manipulating the decision-makers of energy policy, or through manipulation of energy systems (Kisel 2016, 8; Kurian and Vinodan 2013, 385). Manipulation of energy systems was chosen as the main source of interest in this study, since it allows a more transparent and verifiable research. Nevertheless, instances of policy-maker manipulation and coercion around energy issues were conducted when regarded appropriate.

Indeed, Russian key actors seem to have been negotiating directly with the former president Yanukovych, potentially affecting the withdrawal of the Association Agreement, and later providing the former Ukrainian President with political asylum. However, it is a far more rigorous task to gather evidence on such relations within the whole governmental system of the two countries. Thus, it was infeasible to conduct a complete assessment in a relatively short span of time available for the study.

An argumentation resembling this line of thought could be presented by Ariel Cohen (2015, 2-3), who holds that Russia keeps on using energy as means to create stronger interdependence between states and ultimately "*imposing its foreign policy agenda*" on these countries. Given the pretext, Russia might be interested in stronger cooperation on energy matters with Ukraine to create new ways by which the adversary is coerced. One such example of energy weapon Cohen (Ibid) presents is holding energy in a region as a hostage to extract concessions. Another is price discount towards politically loyal partners. A third example is funding organizations handling energy issues in a way that coincides with Russia's interests (ibid, 3). The last example is rather soft since it border-lines the generally accepted lobbyism when properly managed, and is commonly conducted by large corporations as well as states.

Anders Åslund (2015, 185-206) writes that Russia uses *"energy as a weapon not only to exert leverage over Ukraine, but also to control its leaders and key power players who have personally enriched themselves through opaque energy deals with Russia"*. Therefore, one should keep a lookout not only for momentous energy incidents, but also the crucial choices in energy sector taken by key players and Ukrainian oligarchs in Russia's favor.

An even more offensive view is presented by Yevgeny Magda (2015), a Ukrainian political expert. He goes far in emphasizing energy as a vital component in Russian arsenal of hybrid warfare, citing examples as 2014 gas crisis and the attacks on Donbass coal infrastructure in July 2014 (Magda 2015, 84-89). Additionally, he mentions energy diplomacy and interdependencies as a way for Russia to obtain its will, for instance through obtaining market shares and partners in foreign corporations (Ibid, 90).

When it comes to Russia, Guzzinis argument makes an interesting departure point by highlighting a realist mind frame which can be supposed to guide Russian action in the field of energy. A realist mind frame will emphasize power, anarchy, and self-help in order to

tackle a challenge (Kuzemko, Keating and Goldthau 2015, 8-9). Given the outlook, one might strengthen the view that energy will be applied as a means to counter-act 'NATOs threatening expansion eastwards', as perceived by Russia. By utilizing energy means, Russia can pressure Ukraine into concession and abandon Crimea. In turn, Russia will gain Crimea's military strategic position and Sevastopol fleet, effectively expanding its "sphere of influence".

Another way to interpret Russian motivation is by highlighting the development in energy (Van de Graaf and Colgan 2017, 60). One such development is the European Union's (EUs) struggle to slowly depart from Russia as the main energy supplier. The issues for EU comprise transit through Ukraine, persistently high European dependency, as well as the pull towards renewable and environmentally benign energy solutions.

The second issue for Russia is the technological advance of shale gas and LNG as an alternative for Russian export, enabling Central Asian countries as well as United States to contribute with more supplies in the European market (Dellecker and Gomart 2013, 4). A somewhat related problem is the aspect of falling prices on fossil fuels and Russian economy's vulnerability to price drops (Manning 2014, 9). The annexation of Crimea from this point of view could maintain that Russia also turned to balancing behavior within energy matters. By taking control over a bigger part of Ukrainian gas transit and removal of Sevastopol fleet as a negotiation card from Ukraine, Russia could improve their trading position. Additionally, Russia established dominance in Black Sea regarding energy supplies shipped from Central Asia and Middle East. Lastly, it created an opportunity to build a new gas pipeline to Europe through Crimea avoiding potential transit countries such as Turkey, effectively countering the proposed Nabucco pipeline (Sussex 2015, 174-175).

These realist arguments make some implications on what can be expected in terms of energy securitization and weaponization in the conflict. From an offensive realist approach, Russia would want to securitize energy in general to legitimize application of exceptional means towards Ukraine and other actors (Nance and Boettcher 2017, 2). This can be done by claiming various existential threats to Russian nation and its interests by the state of Ukraine itself and the West. Following Heier on this track, Russia would use energy as another opportunity to intimidate and subvert its opponents, exerting political influence (Haaland Matlary and Heier 2016, 92).

With this offensive approach in mind, Russia can be expected rely on international buck-passing of Ukraine, meaning that other states will not engage in defense of Ukraine. Buck-passing allows Russia to take control over territories and other points of significance the state may have to assure its survival, security, and power-maximization (Collins 2013, 24). Provided that such approach is valid to explain the case, one should observe Russian energy securitization and weaponization together with a general increase in energy-related events and militarization, where the state exploits every given chance to advance its position in the conflict.

Motivational realism can supplement the offensive realist approach. Motivational realism claims that to comprehend state behavior one must look for their greedy motives and less on the international structure (Ibid). This can be an interesting angle of approach. Wealth might be considered another ultimate end of national policy in addition to survival, making it central in state decision-making. Presenting wealth applied to energy within motivational realism might be done by simply quoting Adelman (1995, 31), where he says that:

"A state seeks first to survive, then, to cultivate its garden, or spread the true faith, or bash its neighbors, or anything else. But whatever the objectives, the more wealth the better. Hence each government seeks maximum value (…)"

Wealth is a strong motivator for action and the wealth energy systems create to both countries can be considered formidable. However, keeping the assumption of zero-sum gains, the intent could be to gain the most out of Russian market position and increase its "sphere of influence" on energy questions compared to Ukraine and Europe (Van de Graaf and Colgane 2017, 60). Hence, it might be interesting to make observations of what is to be gained in terms of wealth, treating it as a goal as well as a means for survival.

Motivational realism would thus have some implications for a better understanding of energy as a weapon and the 'blackout'. Russian interests in control over Black Sea area and energy resources, a wish to decrease transit payment on gas through Ukraine, and control over energy industry in Donbass might all play a significant role throughout the conflict. Further, given the economic interests, Russia will potentially securitize energy, making it a high priority for the state while enabling exceptional actions when deemed fitting. Energy could also be perceived as a central means for holding Ukraine captive, maximizing Russia's wealth and influence on its behalf.

The defensive realist approach treats geopolitics of Russia as merely balancing the NATO expansion and will stop when Ukraine is coerced into being the buffer-state it was before, maintaining status quo. Indeed, Russia would not want to weaponize and securitize energy too much, since it may make Ukraine more insecure and willing to pursue more risky policies to regain its security position (Collins 2013, 22). Following this approach, there should be little securitization and weaponization by Russia. Rather, energy can be a stabilizing force, enabling cooperation and bettering the relationship between countries.

For Ukraine, an offensive realist approach might be a bit harder to comprehend given the context and the international structure. By this line of thinking, Ukraine would pursue all securitization moves on energy as a counter-reaction against Russian moves, enabling all retaliatory measures to reinstate its power and weaponizing energy when possible.

A motivational realist approach could on the other hand see Ukraine as greedy. When it comes to energy, Ukraine would pursue the most economically effective politics and fight for access over it. Consequentially, Ukraine would try to securitize and energy every chance they got and weaponize it when suitable, maybe involving Europe to regain their position in the sphere of energy.

However, a defensive realist thinking might be more fitting. From this approach, Ukraine would want to react to Russian moves by reassuring its relations with Europe, both in general foreign affairs as well as energy. At the same time, it would be important to maintain cooperative ties with Russia, avoid further intensification of the conflict and a weakening of their already fragile position. The consequence of such an approach is the Ukraine's need to carefully balance their energy security with Europe (+U. S) on one hand, and Russia on the other.

This implies a twofold movement. Firstly, Ukraine would want to securitize energy enough to receive support and enhance cooperation with Europe (Kuzemko, Keating and Goldthau 2015 159). Secondly, the government would want to limit securitization of energy to a minimum, sometimes even desecuritize, securing their energy system through sustained cooperation with Russia. The use of energy as a weapon is somewhat less probable, but still a possible measure to extract concessions.

2.4.2 The Liberal view

Contrary to the realist view, liberals mainly see energy as another platform for cooperation. A higher interdependence implies stronger cooperation and less conflicts, restricting the use of energy weapons (Nance and Boettcher 2017, 3).

Hence, liberalist theorists of international relations have perceived the pursuit for more energy security as a road to increasing energy interdependence through economic cooperation and mutually beneficial relations on the matter. In the long term, energy interdependence and trade in energy resources are assumed to foster peace among political communities, with the idea stemming from Kant's "Perpetual Peace theory" (Wigell and Vihma 2016, 606; 625).

The liberal theory is linked to a 'market approach' of energy security, emphasizing non-state actors and markets effective functioning to guarantee safe delivery of supplies, low costs, investment in energy and information sharing (Tunsjø 2010, 28; Kurian and Vinodan 2014, 385). According to this rationale, states will not participate in hazardous actions against each other since it may be counterproductive, thereby calming international politics and constraining state behavior (Smith Stegen 2011, 6506, Sterling-Folker 2009, 101-102). Use of energy weapons is therefore best avoided due to vulnerabilities based in interdependence, prescribing maintenance of cooperation as the sensible policy.

A somewhat liberal view of energy can be attributed to Thijs Van de Graaf and Jeff D. Colgan (2017). They put forward an explanation of the Russo-Ukrainian conflict as contextually affected by energy through gas interdependence and Russian "petro-aggression", but primarily driven by other factors, such as: NATO-rhetoric, Ukrainian internal affairs with its turn westwards, and political opportunism from Russia's side (Ibid, 61).

When it comes to energy weaponization, Van de Graaf and Colgan have studied the gas relations between Ukraine, Russia and Europe. They argue that energy weapons are inherently unwieldy and ineffective due to interdependence, making them rare and weak also in the given context (Ibid, 62). Furthermore, they suggest that Russian gas is a mostly fictional 'energy weapon', making the sanctions by U.S and the European Union (EU) towards Russian energy companies a primary source of energy securitization, possibly aggravating the conflict (Ibid 63).

Morena Skalamera (2015, 4), a prominent researcher in 'Geopolitics of Energy Project' at Cambridge has discussed gas as a means in Russo-Ukrainian conflict. The argumentation suggests that an energy weapon will usually backfire, making the costs greater than the benefits. The backfire mechanism could be attributed to interdependence between parties, making her view adhere to liberalist arguments. With that in mind, one should expect few incidents where energy is used as a weapon. Exception in this regard could be threats to apply energy weapons, but they would be empty and sporadic.

Similar to abovementioned scholars, Stulberg (2017, 72-73) has proposed that gas relations between the Russia and Ukraine throughout the conflict were largely characterized by restraint. Mutual co-dependence (with slight complications) is presented as one restraining factor for application of energy as a tool in conflicts. The low degree of conflict here also stands contrary to the militarized escalation on other areas.

If one is to apply a liberalist approach on Russia toward energy issues, an interesting image is presented. Claiming that plus-sum cooperation is possible, the approach implies that Russia will want to maintain strong energy relations with Ukraine. Energy weaponization and securitization is therefore less likely to be present. Russia would go a long way to ensure stability in Ukrainian energy supply and collaboration despite disagreements. The 'blackout' is then most likely an unfortunate event prompted by a terrorist attack, or an aggressive Ukrainian government. A reaction should be mild, with Russian requests to reconstruct the power lines and return to a beneficial state of affairs. Energy is then perceived as an important force for cooperation, stability, and détente of the conflict.

A liberal approach depicting Ukraine would imply a huge reliance on the international organizations to end the conflict and emphasize Ukrainian cooperation with Russia on energy. This means that securitization and weaponization should be virtually unobserved with Ukraine as the wielder. Ukrainian approach would be to maintain cooperating with Russia on all energy related issues, promoting interdependence and continue gaining utility.

The mentioned scenarios do not provide an exhaustive discussion of all the potential explanations. The scenarios are also presented as ideal models. However, they may function as a preliminary platform to guide the thesis, making it possible to narrow down the countries' action choices and understand their behavior. One reasonable assumption is that reality will

consist of a mixture of traits particular to the positions, and not entirely attributable to all actions the parties engage in.

2.4.3 An alternative view

In their assessments, realists see energy interdependence as one more way to exert power over others, usually aggravating a conflict. Liberalists however, see interdependence as a way to foster peace and deescalate conflicts.

Curiously, Stulberg remarks that neither liberal nor realist strains of the classical theories are fully able to explain the documented restraint, periods of cut-offs, and the failure to create stable institutions to administer mutually beneficial gas relations (Ibid, 77). Second, Stulberg argues that models of interdependent energy relationships rely primarily on asymmetric relationships and market positions, evading a more thorough discussion about resilience and deterrent solutions available to policymakers (Ibid, 78).

For him, also a network analysis of the parties should be a central piece to understand restraint and other aspects regarding energy. The implication of Stulberg's work for the current study is the need for awareness regarding energy networks, which for this case is interpreted as energy infrastructure networks. Sectoral dimensions, geographical level, and state vs private enterprises are all a part of that network. More concretely, one should look at energy as a system, with hubs and networks as important fragments to assess its potential and actual weaponization.

Sterling-Folker (2009, 103, 108) makes an interesting claim against the liberalist idea that interdependence fosters peace. For her, the assumption of internal competition and significance of national identity politics permits coexistence of economic interdependence and conflict, with states perceiving each other as security threats. Sterling-Folker (2009, 110) argues that domestic identity politics seek to distance an impure "other" to a pure "self". Such nationalist moves are therefore combinable to a rational profit-seeking in interstate relations. Domestic actors might promote profit maximization in international relations, while at the same time competing for allocation of resources internally, thereby reverting to nationalist ideas to attract followers by forming perceptions of a security threat (Ibid, 138).

Paradoxically, energy interdependence and cooperation appears to be a necessary feature in "making the cake" for the state, but becomes detached from the threat construction and

nationalistic rhetorics aimed at internal audience. Sterling-Folker (2009) takes a "third" road, saying that energy interdependence and conflict should be separated into different tiers and with different audience. However, neither of them appreciates the duality of energy interdependence, as a basal relationship that can simultaneously enable weaponization and limit its scope, ultimately affecting the conflict.

First, the relationship itself makes it possible to exploit energy in various ways. Secondly, the state of relationship seems to be important. If it is balanced, the parties will have a mutual gain from the relationship, refraining from weaponization and conflict escalation. *Ceteris paribus*, an unbalanced relationship should make the stronger party more inclined to apply the energy weapon and escalate the conflict.

Additionally, the mode of conflict becomes an important factor in the assessment. In a warfare with hybrid character, the low degree of conflict on the surface might lead an observer to believe that interdependence disabled the energy weapons, supporting the liberalist approach. However, the concealed nature of this warfare requires looking below the surface and studying the conflict more closely. This covert approach might be difficult to detect, placing ample requirements on observations that back up the argument.

Smith Stegen (2011, 6509-6510) proposes to emphasize timing of events to establish a connection. A covert approach also makes energy securitization somewhat less significant. Nevertheless, it might be precisely the point of a covert act to avoid attracting unwanted attention while succeeding with its purpose. An actor with realist understanding may thus benefit from applying such strategies to achieve relative gains and avoid securitization by the adversary, whist hiding their real intents an weaponization behind a veil of liberalist interdependence and conflict aversion (Wigell and Vihma 2016, 605, 609).

In general, this chapter first presented the energy interdependencies as a dispositive factor, qualifying the use of energy weapon. More material interdependence and systemic connections between states simply make the weapon arsenals bigger. In the second sense, energy interdependence can be viewed in terms of balances and "strength of the 'bond'". Here, it is possible to hypothesize that unbalanced interdependence will generally facilitate the use of energy weapon by the party with an advantage, whereas a balance between them will decrease it. Similarly, a relationship where both parties perceive their 'bond' as mutually beneficial and vital for survival or well-being of each, might reduce the application of energy as a weapon. Alternatively, when the relationship is weak and parties do not share such

perceptions, the frequency and scope of the energy weapon might increase. Ultimately, the overall level of the conflict could vary in line with the adversaries' actions in the field of energy.

It is also expected that in hybrid warfare, more interdependencies would facilitate the application of energy as a weapon, but somewhat decreasing its size. One should also incorporate resilience and preventive solutions available to the parties, as Stulberg (2017) proposes. Moreover, one must closely examine how the adversaries behave and respond. The assumption on this topic is that securitization of energy relationship will both escalate the conflict and lead to more energy weapons being used. Desecuritization will have the opposite effect. In sum, all these factors appear important in a discussion on energy weapon and international politics.

	Low level of material connection	*High level of material connection*
Balanced/Strong 'bond'	Practically no energy weapons, Minor size	Few energy weapons, Minor-Medium size
Unbalanced/Weak 'bond'	Some energy weapons, Medium size	Many energy weapons, Major size

Table 4: Assumptions on energy weapons and interdependence, excluding mode of conflict and securitization. Inspired by theoretical approaches.

3 Research design

This chapter is divided in two. The first part addresses three subjects, namely: the research questions, the way this thesis tackles them and how it proceeds in doing so. The second part expands on the methodological framework.

The over-arching research question this thesis attempts to answer is:

How and under what conditions can states use energy as a tool in conflicts?

The theoretical part has made some suggestions, but requires support by empirical evidence. The Ukrainian Crisis is used as a case to where the theory is applied, assuming that the context might be helpful to provide empirical evidence and elucidate the question. The Crimean 'blackout' becomes one instance were energy weapon is supposed to appear. The instance spurred some new questions, such as: *was the 2015 'blackout' an example of an energy weapon use? How was this energy weapon applied? Why was it used? What effects did it have and why did it occur so late in the conflict?* These subquestions need to be explicated by an analysis of the instance itself.

However, the theory and the path of this Crisis spurred another important question that needs to be addressed: *Was this 'blackout' the only instance of the energy weapon during the period?* This last question becomes significant as it requires a thorough analysis of the path of the Ukrainian crisis in search for events that are associated with the energy weapon. In due course, this examination might help to clarify how the energy weapon is used. For instance: *Is the energy weapon used together with military mean or is it used against military means? Is it used to pressure an opponent to make a desired move or is it used to pressure the opponent to negotiate and cooperate?* All these puzzles stem from the main research question and the different hypotheses derived from theory. In addition, it is possible that such analysis will provide some nuances and new dimensions which were previously overlooked.

The procedure guiding the analysis consists of a single case study in which the methods applied are explaining-outcome process-tracing and examination of rhetoric, grounded mainly in textual data from open sources. Process-tracing is sensitive to the micro level, enabling examination of somewhat obscure processes in the political sphere of action (Blatter & Blume

2008, 319; Beach & Pedersen 2013). Accordingly, the method is appropriate to consider both securitization and weaponization in the given context.

The next sections will construct a methodological framework which guides the analysis and address potential challenges. The Background chapter will provide contextual knowledge and information about Ukrainian electricity system, which are substantial parts in establishing a systemic connection, assessing the observations, and producing evidence. The Analysis chapter will track the conflict path and collect observations. The observations will then be closely examined, compared to initial expectations, and serve as evidence to answer the research questions. Throughout the analysis, the theoretical framework becomes a guide both for initial expectations and considerations. The analysis is divided into several phases, where each phase represents a stage in the conflict. The Discussion chapter will sum up these findings and provide explanations for the research questions. Additionally, it will consider some policy implications.

3.1 Methodological basis

The thesis positions itself within a positivist epistemology. It is positivist since the study uses senses and observations to assess and study energy weapons in conflicts. However, it is positivist "with a twist", since the study also seeks to interpret how and why central actors frame the events (Bennett and Checkel 2014, 14-15).

Gathering textual data from online-based open sources makes it easily accessible when contested. However, the interpretive nature of the study creates some ambiguity and reliance on the researcher. Firstly, data is gathered from both English, Ukrainian, and Russian websites, making it difficult to question reliability of the research. Availability of various translation programs enables a simplified assessment of data and its reading, but does not solve problem (Bryman 2012, 277). Another issue is that information from different sides of the conflict might be misleading, establishing the need for triangulation. Thirdly, one must address the positionality of the author given his background from Ukraine. Thus, to avoid biases such as pre-established beliefs and emotions, it will be imperative to be transparent and relying on the data at hand while conducting research. A way to reimburse these normative issues is presented.

Broadly speaking, the goal of all explanatory research is to make descriptive and causal inferences that can substantiate a question under study, conducted by a public procedure with an element of uncertainty (King, Keohane and Verba 1994, 7-9). The focus of this study has already charted some grounds for the research design, narrowing it down to a qualitative within-case study as the most fitting approach. For George and Bennett (2004, 31) case studies are a research design meant to discover the links and conditions through which an outcome occurs. Their understanding of a case as "*an instance of a class of events"* is applied, viewing the Russo-Ukrainian case as an instance of application of energy weapons in conflicts (Bennett and Checkel 2014, 8).

Since the approach coincides with the aim of this study, it is perceived as appropriate to answer the research question. However, a couple of weaknesses in this approach concern the issues of generalization and causal effects. Since the research is conducted to explain only one case with few events, it does not allow for representability and the observed mechanisms cannot be automatically transferred to other conflicts (Collier 2011, 824). Still, researchers might gain insight and guidelines regarding possible mechanisms and their logic, meriting further research in other cases (Bennett and Checkel 2014, 239; Blatter and Blume 2008, 348-349). Furthermore, the lessons from this study might resolve some controversies on the issue.

When it comes to causal effects, they will be context- as well as action-dependent. Therefore, each case of weaponization and securitization of energy in conflicts will be very different. Contrary to a correlation analysis, the nature of the case study approach does not authorize numeral quantification of effects. Nevertheless, the approach does allow us to create causal models with hypothetical effects, based on the investigation of causal connections in the study (Collier 2011, 824). Hence, it becomes possible to make some statements regarding the construction and design of the energy weapon concept.

This case-study is supported by theory, although the research might gain value by adapting and reshaping it. Additionally, other theories can be incorporated to comprehend the fallouts. The approach taken here might be labeled as an idiographic, theory-guided case-study seeking to explain the outcome through a mechanism. The approach is seen as a step between the inductive idiographic case study and a hypothesis-generating study (Levy 2008, 4-5). Its utility lies in the focus of the case in itself combined with integration of theory to explain the observations in empirical material.

Even though the case is chosen because of one particular instance, there is a second reason that contributes to justify its study (Bryman 2012, 67). The historical relations between Ukraine and Russia on the topic of energy are not entirely peaceful. One might recall the intense gas crises that unfolded in 2006 and 2009 (Stulberg 2017, 74). Prior history indicates that countries have experience with energy in conflicts, making it plausible that utilization of energy has been incorporated into their behavioral repertoire. Thus, historical experiences make an argument to treat this case as *more*-likely, if not most-likely to contain the theorized concepts (Levy 2008 12; Bennett and Checkel 2014, 25-26).

3.2 Process-tracing

The most accurate way to conduct this study is by examining the link between cause and effect to study the causal mechanism that lead from X to Y, where securitization and weaponization are perceived as central devices, resembling pullies, cogs, and gears (Gerring 2005, 189). Causal mechanism is understood as a complex *system* which *contribut*e to produce an outcome, by the *interaction* of a number of parts over time, and where the parts consist of *entities* that engage in *activities* (Beach and Pedersen 2013, 1; 6). Process-tracing is a tool that aims at this goal through investigation of the intermediate factors between a hypothesized cause and the observed effect (Ibid, 2).

Investigation of events is conducted over time, yet, clear understanding of a mechanism requires good description of the situations at each moment. Here, one might need to combine both quantitative and qualitative data to paint a detailed picture of each event (Blatter and Blume 2008, 323-324). Although this approach might resemble a congruence analysis, the latter differs from process-tracing by merely investigating the correlations between X and Y at different stages of the process, making it less able to 'grasp' the mechanism that actually produces the outcome (Beach and Pedersen 2013, 4; Collier 2011, 285; Blatter and Blume 2008, 320).

Process-tracing can be presented as a single method to test the existence of causal mechanisms by empirically verifying theoretical arguments at different steps of the process leading to the outcome (Beach and Pedersen 2013, 10). The point is to look for observable implications of possible explanations to establish a relation with hypothesized mechanism. This thesis follows Beach and Pedersens (2013) view, who present a division of the approach

by splitting it into three ways to conduct process-tracing. These are theory-testing, theory-building and explaining-outcome process-tracing.

Explaining-outcome process-tracing seeks to uncover mechanisms that help to explain and understand outcomes by searching for evidence which are sufficient to get at the particular results, often through an eclectic approach (Ibid, 3). This variant of process-tracing fits well to disassemble, identify and systematically explain how the energy weapon unfolds (Collier 2011, 823). However, this type of process-tracing can only test for the necessity of some *parts* of the mechanism while accounting for its most important factors, making it unable to tell whether the entire mechanism is necessary to provide the outcome (Beach and Pedersen 2013, 93). This is somewhat in line with quantitative approach to social sciences, where the t-tests provide significance levels to achieve confidence in the hypothesis. The qualitative nature of this study fails to provide similar levels of certainty, but struggles to come up with evidence that are beyond plausible and can be straightforwardly accepted by the reader, enabling a convergence of interpretations (Bennett and Checkel 2014, 295).

The different types of evidence are made up of observations together with contextual knowledge of the case and revised by accuracy of the data. The challenge of making strong inferences from the data lies in discovery of unlikely evidence that can narrow the scope of examination (Beach and Pedersen 2013, 120).

Beach and Pedersen (2013) present four different types of evidence. The first is pattern-evidence, which entails statistical patterns and regularities. A second type is sequential evidence, evaluating temporal and spatial chronology predicted by the mechanism (Beach and Pedersen 2013, 99). The third type is trace-evidence, where the mere existence of some particular action or measure provides proof for mechanism. The last type, account-evidence, looks at the content of empirical material (Ibid, 100). To make use of the evidence, it is important to make some predictions, expectations as well as standards that can guide the analysis. Theoretical framework provided some unprecise expectations. The last part of the chapter will therefore handle operationalization of possible evidence and its impact on inferences (Ibid, 101).

The approach taken here has several complications that require attention. One complication is that smaller parts and fine-grained details may cause an issue of "infinite regress", since all the connections in a chain of mechanism can be studied very extensively and almost infinitely

(Guzzini 2013, 259, Bennett and Checkel 2014, 11). A second issue is addressing the possible indeterminacy problem, since the potentially large number of variables to explain only one case makes all the variables significant for the outcome (Bennett 2010, 3). Both critiques seem valid, to which the response is that only some data is valuable to distinguish between explanations and confirm connections. The reply places emphasis on the most central pieces of evidence to avoid utter complexity, aided by theory and contextual knowledge. Additional emphasis is placed on the defensibility of a researcher's decision to stop explaining the variation when it is deemed sufficient (Bennett and Checkel 2014, 12).

To avoid infinite regress and indeterminancy, the data is probed by different tests that can confirm and eliminate explanations, separating between evidence that are (un)certain and (non-)unique to establish causation (Bennett 2010, 4; Bennett and Checkel 2014, 16-17). The first type of evidence is the one that must appear if an explanation has some empirical roots. The second type of evidence is the one that can narrow down alternatives because it may only be explained in a certain way (Collier 2011, 825).

This logic of inference stems from the work of Thomas Bayes' where he studied how our confidence in an explanation should be updated given the available evidence. He proposed to calculate an answer as a probability score, produced through assigning values to our initial confidence in an explanation, and combining it with the likelihood to find this evidence given that an explanation is either true or false (Bennett and Checkel 2014, 278). Assigning such probabilities might be too subjective in this single study, but is a viable approach for further studies when researchers obtain better understanding of the mechanism. What will be used however, are the tests to assess the power evidence has for an explanation.

The least helpful test of the evidence is the "straw in the wind", which basically fails to provide clear answers regarding the hypothesis because it is neither certain nor unique. However, this evidence might be helpful in initial assessment and act as support to other tests. The second test, "smoking gun" searches for clear evidence that is unique and may help to confirm a hypothesis if found, but it cannot disconfirm a hypothesis when absent, making them uncertain (Bennett and Checkel 2014, 17).

Third tests, labelled "hoops" may help to establish a connection by being a required part. Thus, more precise predictions may help to establish presence of a part of a mechanism, but it does not make them completely unique in establishing causation. Nevertheless, smaller

"hoops" can approach a higher degree of uniqueness, making the test very valuable. The last category is the "doubly decisive" test. In this case, the passing of the test confirms the existence of a mechanism and eliminate others, while failure of the test suggests elimination of a mechanism as significant (Beach and Pedersen 2013, 103; Collier 2011, 825). The issue with the last test is the rarity of such evidence in social sciences. Compensation comes in combination of "tight hoops" and "smoking guns" since these tests may perform the same function when adjoined, although it requires more observations and testing.

Another issue that presents itself is the biased selection of data that can contribute to misguiding evidence and wrong conclusion. The issue needs to be overcome by making multiple independent observations to evaluate its accuracy (Beach and Pedersen 2013, 127). The study tries to minimize the issue by providing a solid descriptive narrative and a sequential timeline leading to the key events throughout the process. A thick narrative will in turn help to reconstruct the process, understand the context and provide a foundation to carefully consider equifinality of the outcome (Bennett and Checkel 2014, 21). *"Casting the net widely"* for alternative explanations as well as observations is therefore important to strengthen our inferences (Ibid, 23, Blatter and Blume 2008, 349).

3.3 Textual analysis of rhetoric and actions

The way to make sense of the data and observations in this thesis will be conducted mainly through textual analysis. The technique is used to grasp the social practices and access the observations on relevant actions that can explain weaponization and securitization of the actors in Russo-Ukrainian conflict. The core point in the discussion is that social practices of actors and their sense-making may leave material traces in form of texts that provide a basis for examination (Mckee 2003, 15; Wodak and Meyer 2009, 5-6; Fairclough 2003, 38).

These empirical manifestations are in turn processed to produce evidence. In line with the discussion, McKee (2003) notes that textual analysis is essentially an "*educated guess on the most likely interpretations of the text (...) to obtain information on the way people make sense of the world around them"* (Ibid, 14-15). Texts can be analyzed in different ways, from quantification of some explicit words to qualitative assessment of the meaning and purpose behind a text. In this tradeoff, the current study leans towards a qualitative assessment applied to the texts, focusing on some selected features (Fairclough 2003, 6).

Disassembling McKee' statement one might say that texts are representations of the ongoing discourse within a community. More precise, texts are social events, formed by language, social practice, and social actors (Wodak and Meyer 2009, 6). Primarily, it is the discourses that shape the way individuals within a particular community perceive the world (Mckee 2003, 12). Discourse is understood here as intersubjective arrangement of language coupled with certain issues, making the former an irreducible part of social life (Jørgensen and Phillips 2002, 1; Gee and Handford, 2013, 11). Language is thus the social structure through which meaning is practiced (Fairclough 2003, 39).

In this thesis, the textual analysis mainly focuses on understanding the motivations of actors throught heir language in a particular context. Furthermore, such analysis will help to grasp the meaning behind certain actions within a context, ultimately providing better evidence (Fairclough 2003, 2-4).

Texts are also shaping elements of social events because they can bring forth change and guide individual's activities by reshaping and projecting certain discourses to the audience (Fairclough 2003, 8, Bryman 2012, 530-532). To be more exact, texts can be a representation of power structure and ideology which continuously attempts to steer public perceptions (Wodak and Meyer 2009, 8; Bryman 2012, 536-537). Consequentially, texts are able to tell more about the actions of the actors, what discourses made them possible and unveil the mechanism that lies behind.

Similarly, Guzzini argues that discourse analysis is required in order to analyze securitization. Understanding the way meaning is produced in energy and security debates is for him an essential part of energy securitization, making it necessary to integrate the entities common situational understanding in the analysis (Guzzini 2013, 255). Thus, Guzzini goes beyond seeing securitization moves as merely "banal utterance of security" by actors in public speeches and declarations, making them a collective social practice based in shared memories and understanding (Guzzini 2011, 336).

To sum up the discussion in a limited space, several researchers note that texts may a representation of the social world and the ongoing discourses, simultaneously being a promoter for a certain discourse. Scholars of discourse label this relationship as dialectical (Jørgensen and Phillips 2002, 20; Fairclough 2002, 38; Wodak and Meyer 2009, 6). This is an

important supporting point for the study, since it assumes that certain discursive moves from actors may alter the social reality, ultimately informing, and reshaping the conflict.

3.3.1 Reflection regarding data sources

The discussion regarding research design suggests that a decent amount of data is necessary. However, the short temporal scope of the study limits the collection of possible observations. Primarily, this study falls short in interviewing the central decision actor on both sides of the conflict, but such deficiency can be partly explained. First, it would be undeniably impractical and probably impossible to interview state leaders such as Vladimir Putin and Petro Poroshenko to understand their incentives. Secondly, the members of parliament on each side of the conflict are both difficult to contact and bound by confidentiality. Thirdly, the persistently turbulent conflict situation between the parties made it unfeasible to conduct field research in Crimea and Donbass. Data collection has therefore majorly focused on documents, statistics and material provided by various open sources.

The inability to access the back-stage of decision-making raises a relevant problem regarding lacking evidence and possibly skewed representation (Gee and Handford 2013, 525). Nevertheless, public statements are made to represent the official position of governments, making them a chief form of communication to address their adversaries. The lacks regarding some types of observations is therefore perceived as real, but with minor implications to the study.

The collection of texts has thus been inevitably selective, based on particular events of interest throughout the process. Since electricity supply is the main energy system under study, most observations will be related to that particular topic. Some additional texts and data were gathered when the original observations were insufficient to provide convincing evidence. Given the inherent complexity of energy systems and the context, the observations included issues such as infrastructure of nuclear and fossil energy, electricity grid maintenance, international trade, and even weather forecasts. However, conclusive evidence remain difficult to access, making the conclusions and the function of the mechanism somewhat debatable and open to criticism (Fairclough 2003, 15).

Data for the main analysis are gathered from the time of Annexation of Crimea in 2014 to December 31, 2015 (Bennet and Checkel 2014, 26-27).

Guzzini (2013, 55) proposes three locations where data about foreign and security affairs should be collected, and this thesis chooses to follow his recommendations. First setting is the government or political system representing practitioners and the 'practical' level. The second is the media and cultural institutions representing public space and the 'popular' level. The third setting comprised of the research institutes and think-tanks, representing the expert system and the 'formal' level. Additionally, statistical data from large institutions, both governmental and international, will be applied to assess some empirical facts regarding the countries energy- capabilities and capacities.

The types of sources that are used in the research are public statements and public interviews, official documents, archival material, newspaper articles, and research material. The latter is again comprised of articles, books, and various studies about the conflict (Beach and Pedersen 2013, 134-143).

From the practical level, data sources are state officials and relevant governmental bodies (Bryman 2012, 549; Beach and Pedersen 132). On this level, the main sources of interest are parliament officials, government officials and the presidents of the two countries. The primary bodies of interest on the topic of electricity are energy ministries, respectively the Ministry of Energy and Coal Industry of Ukraine and the Ministry of Energy of Russian Federation.

Public media from Russia and Ukraine has been widely used to depict the process by providing both observations and contextual knowledge (Beach and Pedersen 2013, 142-143; Bryman 2012, 552-553). In addition, data from Western media has been collected. The gathering of data from media sources has been pursued to provide a timely picture, ending when it was considered adequate for the explanation of event in question. On this level, the sources vary greatly, but the main are ATR, BBC, Censor, Kommersant, RIA (RIA Novosti), Reuters, RBTH (Russia behind the headlines), RT (Russia Today), TASS, Sputniknews, and QHA. The great variation in newspaper sources is partly due to the "snowball sampling" technique that has been applied on documents as well the need to verify information between them (Bryman 2012, 202).

When it comes to the formal level, three distinct strains of sources can be presented. One is the international expert community's publications about the conflict, with research articles and reports. The second strain is interested in energy research covering the conflict area, with Center for strategic and International Studies (CSIS) as the most prominent. CSIS is a U.S

based policy-research organization. They provided a ‘Ukrainian Crisis Timeline’ which have helped to connect major political developments to the energy incidents. The last strain of sources is interested in techno-mechanical information on the energy systems in the conflict areas throughout the conflict. Information can be provided both by the energy operators and the technical experts responsible for the functions of the energy components.

Contrary to a small sample, this wide range of sources appear better suited to provide the observations necessary to identify the substantial factors through which application of energy as a means in conflict occurs.

3.4 Other challenges and normative consideration

Some problematic aspects in the study, such as generalization and lack of data have already been outlined. Several other aspects are important in this regard and should be discussed as a response to disapproval of the qualitative method adapted in the study (Bryman 2012, 405). Bryman (2012, 49) recalls other researchers take on the assessment of qualitative research, where ‘trustworthiness’ is proposed as the main criterion. Trustworthiness is presented as mirroring the quantitative methodology with four different types of research criteria. The first is credibility, reflecting the believability of the findings. The second is transferability and the third is dependability. Transferability is closely connected to external validity and generalizability, questioning how well the finding apply to other contexts. Dependability, on the other hand, is concerned with how well the findings will apply at other times. The last type, confirmability, judges whether a researcher’s values are projected on the study and weaken its impartiality.

As previously discussed, the generalizability of the study is very limited, directly impacting its transferability. When it comes to dependability, the study is temporally bound, but not completely dependent, making room for possible reappearance of the findings in other contexts. The lessons and insights gained by the research are therefore presented as limited, but potentially significant for the study of energy as a tool for states and other actors. Further challenges are addressed in consecutive paragraphs.

3.4.1 Evidentiary sources, triangulation, and credibility

In line with many qualitative analyses, complications regarding the consistency of the data and the confidence in it are present. The issue might be especially prominent here, since the study uses media coverage from both sides of the conflict. This issue is especially valid here, since several researchers has pointed to Russian propaganda as another tool they readily apply in conflicts (Haaland Matlary and Heier 2016, 12-13). Addressing the credibility of the findings, this study has deconstructed the most central concepts, making them more readily available and less ambiguous. Further, different observations and data are accessed to provide a wide range of evidence and draw valid inferences (Bennett and Checkel 2014, 102-103).

However, observations are often provided with instrumental motives to convince spectators, making the facts more difficult to obtain, meaning that a great deal of caution must be exercised (Ibid, 28). Western media, organizations and research papers has especially emphasized the Russian information warfare and the "alternative facts" presented by the Russian media (Lucas and Nimmo 2015; Giles 2016; Østevik 2016). Being sensitive to this possibility, the incoherence in presentation of the facts might itself serve as valuable evidence if certain truths can be established (Bryman 2012, 550).

Propaganda and disinformation are therefore issues which deserves ample attention. These challenges are handled by triangulating material from different sides of the conflict, and balancing them against each other in search of accurate information (Ibid, 24; Bryman 2012, 394). Conveniently, the author possesses knowledge of Russian, Ukrainian, English, and Norwegian language. This made him able to get hold of data from different sources and contrast them against one another. Western sources are applied to double-check information and validate it. However, also this information may hold skewed view of the incidents. To counteract this issue, incidents where the different sources were unable to present relatively compatible information were excluded from the analysis.

Even though it is not a big problem, the inner validity of the study might be difficult to assess nevertheless, primarily because it depends on personal interpretations and connection of surrounding events. Although, the theoretical platform and transparency about connectivity of the events can reimburse the validity challenge to some degree (Lund 2002, 108; Bryman 2012, 406). In line with Bennett and Checkel, this thesis acknowledges that the result might turn up inconclusive, however *"intellectual honesty and rigor is better than a gladiator-style of analysis* (2014, 31)*."*

3.4.2 Positionality and normative concerns

Ensuring a good study means endorsing objectivity and drawing inferences based on the evidence. Accordingly, subjective feelings, personal values or predetermined opinions should be avoided (Bryman 2012, 392-393). Since the researcher has a background from Ukraine, it is necessary to address confirmability and the researcher positionality (Burke 2014). The background might dictate that the researcher will be inclined to portray Russia as a vile attacker and Ukraine as a poor victim. However, this is hardly the case. First, the focus on energy as a tool enables the researcher to distance himself from the annexation of Crimea and the civil casualties in the conflict. Secondly, the researcher has personal ties to both sides of the conflict, making it somewhat easier to keep a neutral stance during the investigation of events. Thirdly, the researcher has lived outside of Ukraine for a long time, making his allegiance to the state of Ukraine minimal and enabling an impartial take on the case. Lastly, since the researcher lives abroad he is neither affected nor bound by the governments of the two states.

However, there is a natural limit to a researcher's objectivity given the interpretative nature of the study and the social context of the researcher, implying that the reading and interpretation of the observations may be "colored" by any researcher (Beach and Pedersen 2013, 98; Bryman 2012, 398). A hypothecation of elements in the mechanism and reliance on the framework is therefore important to create a structure which can guide empiric findings vis-à-vis a researcher's predispositions.

3.5 Operationalization and evidence

The discussion of the research methods has led to an acknowledgment of the need to form some prior expectations regarding the evidence. The theoretical discussion of energy weapon as a means in conflict emphasized several factors that need to be integrated.

Starting broad, the first type of evidence looks at the systemic connections between the adversaries, making an argument for material level of interdependence. Secondly, one should establish the strength of the 'bonds' between the adversaries by looking at the status, significance, and reciprocity of the relationship.

By looking at the material interdependence and adversaries' energy security, it should be possible to identify vulnerabilities and dependencies, displaying the *disposition to* energy as a

weapon and its *potential trajectories*. The logic behind is that energy systems of the countries must be interconnected and have some perceived weaknesses which can be manipulated by other actors. Therefore, interdependencies and vulnerabilities regarding energy systems in general, and especially electricity need to be present.

A second category within this type of evidence is the 'bond' between adversaries is recognized by their "needs". It can be in term of significance, vitality, reciprocity, and mutual benefit of the systemic connection. The third category is in terms of the balance. For instance, the distribution of material balance could be 90% and 10%, strongly favoring actor X, while the 'bond' could also be strong if the 10% part is absolutely vital for proper function of actor X's energy system. This 'bond' should be analyzed in the extension of the material connections and the changes in adversaries' energy security. It is possible to assume that weaker 'bonds' could contribute to increase the frequency and scope of energy weapons, and vice versa.

Groups which should be examined consist of both threat nature and threat sources, throughout the whole sectoral spectrum. The first task is to eliminate issues of safeguarding and lesser importance, leaving the researcher with only potential energy weapons.

A second type of evidence that can be expected is the presence of events where energy may have been willfully disrupted. This type of evidence can also be split into several categories. First is the frequency of events. Documented events on energy matters throughout the conflict period are important both to access the origin of events and their regularity, relating to pattern and trace evidence. Documented events may also provide sequential evidence when a chronological timeline is constructed (Beach and Pedersen 2013, 99).

Second category on this type of evidence is the intensity and scope of events, which is assessed by looking at the level of disruption, official statements, and public coverage of the event. One assumption that can be made at this point is that larger and more severe events will also be better covered in public discourse and the media, preferably on international scale. The researcher cannot access classified information and confidential threats, but neither denies that this kind of evidence might revise the explanations if obtained it in the future.

Overall, a high frequency and scope of energy weapon observations would support the realist view, while less use and smaller size would support the liberal approach.

The explanation hypothesizes that the initial application of such weapons will provoke retaliatory moves by the adversary. Since application might provoke retaliation it is also possible to predict that one instance of energy weaponization will be followed by a retaliation shortly after, making the events appear in pairs. An alternative hypothesized explanation relies on the same initial logic, but assumes that the energy weapon will only be applied as the last resort to coerce an opponent, making them rare and singular, but very intense.

Minor energy events become especially important. These events, which pass under the radar of researchers and media may constitute energy weapons, but not immediately regarded as such, especially within the hybrid mode of warfare. Therefore, additional sensitivity needs to be paid to this issue, making it necessary to examine some instances more closely and relate them to the energy system function. Additionally, evidence of behavioral change by the perceived target combined by proximate observations on energy disputes might indicate that an energy weapon was applied successfully. However, such evidence is not necessary to explain the use of energy as a weapon, since behavior might be accidental and unrelated to coercive moves utilizing energy as a means. Each instance will therefore require careful and critical assessment, with doubt being the indicator of arbitrariness and incongruity.

A third type of evidence consists of traces regarding securitizing speech acts and energy discourse. Categories under this type of evidence are acts which treat energy in exceptional manner relative to the "typical" relations on the matter. The acts will consist of a rhetoric which attempts to present a severe threat and enable exceptional measures to handle it. Actors may be both local, regional, and national, with the latter as the main source of interest. The threat must have a link to the adversary or/and his conceivable allies. In the context of the conflict, one might mention the Russian and Ukrainian state as well as the radical groups associated with each of them. One might generally expect that securitization will accompany the use of the energy weapon.

It is expected that politicization and "normalized" rhetoric takes place when energy systems are rather secure, less important, or when energy incidents appear random and indeterminate. Nevertheless, it could also be a way to handle coercion conducted by application of energy weapon. Actors could instrumentally "play down" the impact of an incident to avoid potential public disorder stemming from the event being discussed as an existential threat. Therefore, desecuritization cannot tell much without placing it a context.

Securitization moves on energy issues may also be an indicator of some other logic. Sterling-Folker's and Skalamera's points become relevant. Firstly, the securitization could be partial, addressing merely the internal audience and not the adversary in the conflict. Secondly, it could be limited to a rhetoric with hollow essence, used for preventive and deterring purposes. Thus, the observations might require supplementary data.

The fourth type of evidence is motivation. Simply put, application of energy weapon requires a party in the conflict to have an interest in applying the weapon, either extraction of concessions or destabilization of another party.

The last type of evidence that can be mentioned is the observation of behavioral change succeeding energy incidents. This type of evidence constitutes sequential evidence. Given that an energy weapon is applied, one can presume that the target will change its behavior in the line with the coercive move. In this case, the energy weapon is regarded as successful. On the other hand, when energy incident is not a weapon, behavioral change is less likely.

To achieve a decent measurement validity of the operationalized concept Adcock and Collier (2001, 535) emphasize the adaption of indicators to the specific context, which is also relevant for this study. The following background chapter will therefore serve to clarify the significance and substantiality of the evidence. One point that can be mentioned is Russian and Ukrainian history on gas relations, signaling that energy was important as a potential goal, means or a cause of conflicts between the countries. This historical relation implies that the actors possess certain knowledge on energy issues and ways to handle them. Concerning evidence, this means that threats might be presented in a subtler fashion to avoid unwanted media attention. On the other hand, the application of minor weapons and threats might not suffice since an experienced adversary will know how to discredit them.

Summing up, one could note that a wide range of evidence can be relevant. This section discussed the aspects which are perceived as the most relevant. Table 5 presents this various evidence with ordinal ranking of outcomes.

Number of material systemic links	Balance between adversaries	‘Bond’ and mutual reliance between adversaries	Incident of intentional energy disruption	Frequency of energy incidents	Disruptive effect/ Size of weapon	Motive of adversary	Securitization of energy by either party	Behavioral change following energy incident
High	Balanced	Strong	Yes	Many	Large	Yes	Yes	Yes
Medium	Partial	Ambiguous	Unclear	Some	Intermediate	Unclear	Ambiguous	Unclear
Low	Unbalanced	Weak	No	Few	Small	No	No	No

Table 5 Evidence types. Prepared by the author.

3.5.1 The four tests

In line with Bennett and Checkel (2014, 16-17) the thesis presents some tests for the evidence, which can strengthen or weaken possible explanations about energy as a means in conflict.

The first test is the "Straw-in-the-wind", which is passed by practically all observed material energy links between to parties in a conflict. Major dependencies and asymmetric control over energy system components within a chain can also be relevant as a test, since passing it increases the probability of energy weapons use. Another way this test is put to use is by looking for incidents of energy system disruption. All incidents were energy is somehow targeted will pass this test. However, larger, and more frequent incidents will increase the probability of energy weapon application. Behavioral change in the field of energy that favor the adversary in the conflict can also represent such a test. Similarly, securitization of energy may be connected to an energy weapon.

The second test, called "Hoop" can be represented by intentionality in energy system disruption. The evidence of disruption in itself is a "straw in the wind", but should be regarded as a "narrow hoop" when it appears intentional, since it is necessary to make that kind of observations in a study in search for the energy weapon. One example could be a bomb targeting a Hydroelectric Dam. However, it is not completely sufficient to affirm the causal inference since it could be placed there by terrorists or environmental fanatics. What becomes important in the sense of international politics and the search for energy weapon, is the probability that a relevant adversary in the conflict was responsible.

Additionally, a motive that can be attributed to a perceived wielder ahead of energy incidents will act as a "hoop test". Thus, a clearer and more obvious motive will pass through a tighter "hoop" when it can be placed in a timeframe which matches the energy incident. A possible weakness here can be associated with the mode of conflict. Since hybrid warfare operates in bigger timeframes, it becomes more difficult to relate the motive to the energy incident. Nevertheless, when such connection can be made, the test could be an important contributor to the inference.

One deduction that can be made from previous discussion on securitization is that securitization moves will primarily mirror the size of energy weapons, with more extraordinary rhetoric and reactions when a weapon is perceived as major and having wide-ranging implications. Thus, the observation of striking securitizing moves accompanying

disruptive energy incidents may act as a “smoking gun” test, making application of energy weapons somewhat more explicit. Another “smoking gun” test is the statements of one party’s claims to have been targeted by the energy weapon. Such claims should indeed be taken seriously and could elucidate the use of energy weapon. However, such evidence is not necessary to affirm causal inference and could potentially even be insufficient, since one party might be wrong and present such statements to somehow further their own interest.

In social sciences, the “doubly decisive” test is the trickiest to come up with and pass. However, two possible ways to pass this test can be presented. Both ways have to incorporate a common base, which is evidence of willful disruption in the energy system. Additionally, the first test combines the base with a behavioral change in line with the presumed motive of the adversary. In this circumstance, the possibility of the instance being an energy weapon use rises exponentially, even enough to affirm causal inference. The second test shares the base, but adds that the disruption must be followed by statements from more than one actor claiming that an energy weapon was applied. The last part should be elaborated. First, the “more than one actor” clause seems weak. However, the thesis will generally trust the claims of a group of actors, assuming that two or more will themselves be guided by evidence and act honestly. Nonetheless, the assumption should be overthrown if it disconfirmed.

Curiously, a “doubly decisive” test providing evidence of a successful energy weapon could manifest itself when both adversaries openly recognized the usage of energy as a weapon and the targeted part changed the behavior as intended by the wielder. Although, finding such evidence within a conflict situation would be miraculous and should not be paid to much attention. An overall presentation of the tests and evidence is made in Table 6.

The initial observations and theory could be used to deduce a track of the energy weapon (Bennett and Checkel 2014, 30). The track would be characterized by large energy weapons which alter the adversary’s behavior. Given previous discussion, the number of such incidents is expected to be rather limited, manifesting in only a couple of events. A somewhat higher likelihood is placed on adversary’s securitization moves when targeted, with a plausible retaliation as a result. Since the moves are expected to be major, the level of securitization should also be high, thereby visible in the texts regarding rhetoric and actions on the matter.

	Not sufficient to to affirm causal inference	*Sufficient to affirm causal inference*
Necessary to affirm causal inference	**Hoop:** Incidents of intentional energy system disruption. Motive of the adversary ahead of energy incident. (Weak 'bond').	**Doubly decisive:** Incidents of intentional energy system disruption by the adversary combined with: a) confirming statements by more than one state actor, or/and: b) behavioral change in line with motive.
Not necessary to affirm causal inference	**Straw-in-the-wind:** Material links. Unbalanced interdependence. Incidents of energy system disruption. Securitization of energy. Behavioral change in energy sphere.	**Smoking-gun:** Statements when one party claims to have been targeted by the energy weapon. High level of securitization accompanying disruptive energy incidents.

Table 6:Tests and evidence to assess an energy weapon. Inspired by Beach and Pedersen (2013), Bennett (2010), as well as Bennett and Checkel (2014).

4 Background

This chapter is meant to provide contextual knowledge, as a part of process-tracing procedure to collect evidence and complement the theoretical framework. This part of the thesis is also initiating the analysis, since it provides evidence regarding the adversaries' material systemic links and balances as well as motives to weaponize the electricity system, practically making it the first hoop test.

Firstly, this background chapter gives a quick recap of the conflict itself. Secondly, it introduces some relevant actors. Thirdly, a presentation of the electricity system depicts the material structure and conditions that enable or limit energy weaponization. Moreover, it represents a structure within which actors operate and by which they are constrained. The contextual knowledge of the electricity system could then enrich the analysis, qualifying the connections between theory and observations that ultimately explain the research questions.

The main actors in the study are the state of Ukraine and the Russian Federation. However, involvement of the other groups may complicate the assessmet of actions and motives. At the same time, it could be an important finding regarding utilization of energy systems as means in a conflict.

As already mentioned, different groups can be involved in utilizing energy in a conflict. The first and the most important are the Crimean Tatars, the indigenous people of Crimea, whose opinion and claims to the land have been partly neglected after the Annexation. Even though they did not control energy systems *per se*, they could have the capacity and motive to disrupt vital energy systems. For Ukraine, this group is perceived as an "ally" and a supporter of Crimean repatriation. A second type of group which is visible in the Ukrainian discourse consist of more radical individuals, nationalists, and extremists (Ishchenko 2016, 458).

Correspondingly, the Russian side of the conflict have radical nationalist and paramilitary "allies", which have been especially visible in Donetsk and Luhansk. Several sources have claimed that these individuals actually belong to the Russian army, whereas others deny such accusation, claiming that there is only Russian-speaking Ukrainian opposition and some Russian volunteers on site. Most likely, there is a great mix of individuals in the area, with some undeniably extremist and ultra-nationalist views. When it comes to deployment of

formal Russian military forces, the answer is less clear (Robinson 2016, 511; Katchanovski 2016, 475). The important detail is the capacity, motive and opportunity the groups have to disrupt vital energy systems, since the Eastern side of Ukraine is known for its industrial activity, gas transit, and coal production.

4.1 A short introduction

Relations between Russia and Ukraine has been entwined through history. However, it seems most logical to recap the events after the Soviet dissolution in 1991. After the first tumultuous years of interdependence, many private persons have managed to build "empires" and business, eventually leading them to governmental positions. Their divergent interests were somewhat managed by the President Leonid Kuchma (Wilson 2015, 102-104). Kuchma had generally a positive and cooperational stance toward Russia, partly resolving the question of Russian Black Sea Fleet in Ukrainian city of Sevastopol. Curiously, Russia even participated in cofinancing construction of two nuclear power plants in Ukraine in 2002 (WNA 2017).

The relationship with Russia deteriorated after the so-called "Orange Revoltion" in 2004, when Viktor Yanukovych, a pro-Russian politician won the presidential election, but was later accused of fraud, prompting a re-election. This re-election led to a different outcome. This newly elected President, Viktor Yushchenko, soon started a process that aimed to integrate Ukraine with Europe, a process with Russian government and President Putin opposed (Wilson 2015, 103; Rutland 2015, 132). In 2010, internal governmental struggles and other issues led to the Viktor Yanukovych being elected President withouth any subsequent objections. His aim was to reverse the development that took place under former Ukrainian leaders, once again shifting the focus towards closer cooperation with Russia (Chausovsky 2015).

The current ongoing conflict between Russia and Ukraine can generally be traced back to 21. November 2013 (Van de Graaf and Colgan 2017, 60). On that date, former president Viktor Yanukovych abandoned the Association Agreement between EU and Ukraine, seemingly trading it in for a membership in the Eurasian Union and substantial discount on gas from Russia (Haaland Matlary and Heier 2016, 36). This move might be interpreted as Ukrainian government, and particularly Yanukovych, giving in for Putin's pressure to retain Ukraine as a "buffer" state (Al Jazeera 2013). Interestingly, the discount on Russian gas was substantial and possibly much desired, given Ukrainian dependency on gas as a source of electricity

generation, heat production, and fuel for cooking appliances. In this instance, one might say that gas played a slight role as an incentive, being used as a 'positive' means to obtain concessions (RT 2013).

The abandonment of the agreement rallied many citizens to protest against Yanukovych' decision on the Maidan Square in Kiev, popularly referred to as "*Euromaidan*". The protests soon escalated into demonstrations and spread throughout the country. Despite the government deployment of riot police and other special forces against the demonstrators, the citizens continued their protests. Around three months later, the protests culminated in fatal clashes between the police units and the people (Haaland Matlary and Heier 2016, 36). This revolutionary movement resulted in Viktor Yanukovych secretly fleeing the country on 21-22 of February 2014. 22 of February he was ousted as the president in Ukrainian parliament (Åslund 2015, 101-112). However, Russia refused to recognize the ousting and the following governmental restructuring as legitimate (Götz 2016, 249-250).

Only a week later, reports started to come in that some unidentifiable, armed military forces were taking control over governmental buildings in Crimea. Per today we know that these forces were Russian (Ibid). About two weeks later, The Federation chose to annex the peninsula on March 18, due to a referendum held two days earlier, which supported such decision and provided some necessary legitimacy (BBC 2015 (1)). Objections and condemnation were uttered by international community (The Washington Post 2014 (1)). The referendum was also formally declared invalid by the UN General Council, holding on to the recognition of Crimea as the territory of Ukraine (UN 2014).

Simultaneously with Crimean annexation, eastern parts of Ukraine experienced unrest and upheaval. The most affected regions are Luhansk and Donetsk. The unrest resulted in a full-blown military confrontation between pro-Russian separatists and the interim government of Ukraine (Götz 2016, 250). This area holds major industries, vital for operation of Ukraine as a sovereign state (BBC 2015 (1)). As of May 2017, it is estimated that the war in the region have claimed around 10.000 lives and displaced two million people (UN 2017).

A range of sanctions were introduced against the Russian Federation's annexation of Crimea. Energy sanctions have targeted Russian oil sector, imposing major costs on Russian noncompliance to international rule (Kuzemko, Keating and Goldthau, 2015, 77). Russia has responded with similar sanctions, worsening the international relations with the West. Additionally, Russia was expelled from the The Group of Eight and other fora (EU 2016; NY

Times 2014; Van de Graaf and Colgan 2017, 60). Nevertheless, as of May 2017, Crimea remains a part of the Russian Federation, with sporadic fighting continuing in the eastern parts of Ukraine, leading som observers to label it as a "frozen conflict".

4.2 State actors and agency

Given the positivist approach "with a twist" applied in the thesis it becomes important to reiterate the understanding which guides the study and explains the chosen analytical approach. An important idea is that reliance on material realities and intersubjective relations guide the construction of international politics (Collins 2013, 96, 98). The study views energy security through mostly objective characteristics but includes the motivations and perceptions of actors.

However, since it is not the task of the study to dive deep into historical narratives, the relevant countries' perceptions are evaluated through existing research. This point of departure allows keeping the distant past fixated and assesses actor's initial perceptions as context dependent. States are discussed as the principal actors, but they are multifaceted in a sense that they consist of diverging individual preferences which compete to direct the national discourse.

To understand more about Russian and Ukrainian interests within the conflict frame, one might reiterate the work of Stefano Guzzini (2012). The work draws attention to identity crises as an important aspect to comprehend Russian actions. He sees Russia's turn to geopolitical perspectives as a response to the fall of Soviet Union and reinstatement of business-as-usual. Russia is then perceived as a state with a dominantly realist outlook on international relations, with many of the same characteristics as before the Soviet dissolution. To be more precise, Guzzini follows Mark Basin in his definition, where neoclassical geopolitics is understood as:

"*A policy-oriented analysis which gives primacy to certain physical and human geographic factors and a precedence to a strategic view, realism with a military and a nationalist gaze for analyzing the 'objective necessities' within which states compete for power and rank* (Guzzini 2012, 220)."

Similarly, Ukraine also suffered from an identity crisis after 1991, but their position and geographical location inhibited the same type of restoration as was possible for Russia. On the

one hand, having long traditions of geopolitics within the system, one may assume that Ukraine continued on a similar trajectory. On the other hand, the country also had to reinstate itself as something distinct. This can be shown by a slight turn westwards, placing more focus on cooperation with Europe and Russia, making the return of geopolitics less feasible, but to a degree necessary. In sum, both actors can be said to have a realist outlook on the conflict and act according to this logic. Thus, the realist view is chosen as the position which conceivably guides the actions of the adversaries in the conflict.

4.2.1 Third parties and non-state actors

During the investigation, this study considers several other actors besides the two states. One group that is especially important are the Crimean Tatars. The group can be said to be indigenous to Crimea, with a great mix of historical roots and ethnos shaping the group throughout modern times (CIDCT 2002).

Crimean Tatars as a distinct group are commonly thought to originate from Turkic tribes and the Mongol Yolk, dating back to the 13th century A.D, when the ottoman Leader Batu-Khan conquered the peninsula and ruled the region (National Geographic 2014). The peninsula remained a khanate under Islamic influence until the end of 18th century, after lengthy battles against the Russian Empire (Euromaidanpress 2016). The battles eventually resulted in Russian domination of the area around 1771, and a definitive annexation in 1783, when Catherine the Great's forces managed to end the Ottoman Empires domination on the Peninsula (SNL 2015).

Moreover, during the Second World War Stalin gave an order to deport most of Crimean Tatars from the Peninsula. The reason was an alleged cooperation with the Nazis, an accusation which was largely refuted afterwards (Euromaidanpress 2016; SNL 2015; National Geographic 2014). Crimean Tatars were allowed to return to the peninsula during the 1980's, but only some moved back. The population of this group in Crimea prior to Annexation was around 250 000.

Russian Annexation in 2014 created turmoil with the interests of Crimean-Tatars and reminded them of other historical events. Russia has later been accused of severe neglection of human rights and other violations against this indigenous group (Klymenko 2015 (1)). Accusations amount to curbing of political representation, denial of access to communication

channels, physical relocation, and restrictions against the Crimean Tatar language (OHCHR 2015; EP 2016; OSCE 2015 (1), 82-100). Some observations were also related to assassination of Crimean Tatar leaders by the Russian government (UNPO 2015, Reuters 2014 (1)). Russian government has itself justified all violence against Crimean Tatars as a necessary response against terrorist and extremist activities (Crimea.RIA 2015 (1); OSCE 2015 (1), 84-88).

Several events surrounding the regional self-government executive-representative body for Crimean Tatars called the 'Mejlis' should be mentioned (Olszański 2014). Since the 1990's The Mejlis has served as a protector of Crimean Tatars human rights and facilitated their return to the Peninsula. Mejlis has also showed opposition against the Russian annexation and the violent oppression against Crimean Tatars by Pro-Russian groups (OSCE 2015 (1), 83-85). On April 22nd 2014, Russian authorities have banned a long-time activist and the former leader of Crimean Tatars, Mustafa Dzhemilev, from reentering the Peninsula (Euronews 2014).

The ban came after Dzhemilevs protest against the Annexation and referendum in Crimea. Dzhemilevs protest speech was conducted the day after the referendum, March 17th 2014, in Ankara, at a meeting with Turkey's minister of foreign affairs Ahmet Davutoğlu (Hürriyet 2014). On the same press conference, Turkey's minister signaled support for Crimean Tatars (Ibid). Apparently, Dzhemilev has developed very close ties with Turkey. He has put the issue of Crimean Tatars rights on the agenda and promoted positive relationship between countries and the people. For this work, he even received The Turkish Order of the Republic on April 14th 2014 (Turkish Government 2014). The ban on Dzhemilev spurred widespread protests by Crimean Tatars against the decision, leading to a failed attempt on May 3rd 2014, at bringing Dzhemilev back to the peninsula (HRW 2014).

A similar story can be told about the former head of the Mejlis and the President of Worldwide Congress of Crimean Tatars, Refat Chubarov. Currently, Chubarov occupies a seat in the Ukrainian Parliament. He was charged for playing a role in May 3rd events and other' extremist' agitation. The charges have consecutively led his ban from Crimea as of July 5th 2014, forcing Chubarov to remain in Ukraine (Ibid).

Another person of interest who is faced with persecutions from Russian authorities in Crimea is Lenur Islyamov. The Crimean Tatar Dentist, whose family was deported in 1944, has managed to build an economic empire in Moscow and Crimea. Additionally, he is the owner of the Crimean Tatar television channel ATR. Islyamov was chosen by Mejlis in April 2014

to act as the first Deputy Chairman of the Crimean Council of Ministers (Kommersant 2015 (1)). In the end of May 2014, Islyamov was removed from his post for 'political engagement' and demands about representation of Mejlis (RIA 2014 (1)). Other sources tell that he sabotaged the concretization of measures concerning resettlement of Crimean Tatars, which was necessary to activate 12 billion Rubles-funding from the Russian Federation (RBC RU 2014 (1)).

Supposedly, Islyamov held this funding as hostage in order to gain concessions regarding Crimean Tatars claim for a national-territorial autonomy, with recognition of Kurultai (assembly of representatives) and Mejlis as rightful political institutions (Ibid, Crimea.Gov 2014, Olszański 2014). In October 2014, ATR was denied reregistration as a media channel four consecutive times, making it necessary to stop broadcasting by April 2015 (OSCE 2015 (1), 34-35). During the first moths of annexation, "Dzhast-bank" owned by Islyamov started up on the territory of Crimea. However, after some time, the bank, and a car company he owned, "Kvingroup" was declared bankrupt, accused for preliminary bankrupcy, and transferring activa to foreign countries. On that issue, Islyamov was charged by the Russian Government (Izvestia 2015). Seemingly, many of the assets regarding companies he owned in Russia were withdrawn and moved in the second half of 2014 and 2015.

In June 2014, an alternative organization for Crimean Tatars was merged by oppositional groups which previously failed to attain majority representation. Organization is called 'Kyryym Birligi', led by the Deputy Speaker of Crimean Parlament Remzi Ilyasov, which simultaneously wished to reorganize Mejlis. The support for this organization is seemingly low since it is characterized by Pro-Russian opinions and overwhelmingly positive attitude towards current Russian authorities (Ibid). July and September 2014 were marked by stronger oppression against Crimean Tatars and the Mejlis. Within ca. one week, from 16th to 25th September, Mejlis lost both its financial assets and property (Ibid, 84). A court appeal of the decision regarding the premises of Mejlis was denied, and from March 2015 the Mejlis was removed from its location in Crimea.

Moreover, in January 2015, Ahtem Chiygoz, a Deputy Chairman of Mejlis, was arrested with several other Crimean Tatars on the charges of mass rioting on 26th of February 2014, a rally to support Crimea as a part of Ukraine. However, none of the Pro-Russian participants on a similar rally that day were prosecuted (EP 2016, 15).

To sum up the findings, Crimean Tatars may have several possible angles to approach energy as a means in the conflict. One is to pressure Russia into concession regarding their rights as

the indigenous people, making them a third party. Another angle is collaboration between Mejlis leaders with Turkish government. Third possibility is to keep up an alliance with Ukrainian government and act according to state interests.

Another significant third party is called 'Pravyy Sektor'. This paramilitary nationalistic movement was initially created in late 2013, as a coalition between several right-based nationalistic organizations and activists (Pravyy Sektor 2016 (1); The Wall Street Journal 2014). Their positions in the issue of Ukrainian sovereignty are far more radical, often involving use of guns and violence to achieve their goals (Pravyy Sektor 2016 (2)). Further, they hold an opinion that Ukrainian political bodies need a total overhaul, implying the removal of current elites and oligarchs from power. For them, such steps are necessary to achieve Ukrainian independence and revival of nationalistic spirit (Pravyy Sektor 2016 (3)).

Given the pretext, they did not support Poroshenko nor the existing government, making activism against them feasible and acceptable. Under the parole "God, Ukraine, and Freedom", they created a conservative nationalistic opposition to the political system in Ukraine. Reiterating the common, but predominantly empty enthosymbolism such as tradition, homeland, ethnicity, and religious roots they might actually be perceived as a Ukrainian counterpart to the Russian "LDPR" party (Hroch 2015, Part III).

The more militant and activist approach from Pravyy Sektor should be mentioned. With their 'Ukrainian Volunteer Battalion', the movement has managed to conduct several offensive and defensive missions in Eastern Ukraine. This paramilitary capacity could also be deployed in other places, with the aim to "*free all of Ukrainian land from Russian occupation"* (Pravyy Sektor 2016 (1)). Thus, this group can be attracted to utilize energy infrastructure to further their interests in the conflict by disrupting and seizing parts of some vital energy systems.

4.3 Post-Soviet Legacies, Ukraine's current electricity system and vulnerabilities

In this part, one should be reminded that Ukraine is located in a strategically sensitive region, as it borders on four EU member states in the west, Russia in the north-east and Turkey in the south. As previously mentioned, Ukraine has been a so-called 'buffer' state between Russia and the West ever since the Soviet Collapse. The state can be perceived as a "grey area" which divides the western and eastern "spheres of influence", creating some space to guarantee Russian sovereignty and lessening the state's various security concerns.

However, this arrangement was deeply grounded on Russian proximity with Ukrainian leadership and collaboration between the two countries. Additionally, tight control by Russian Federation in terms of energy seemed as an important tool to maintain Russian dominion in the region and hinder Ukraine from getting "astray". Åslund (2015, 185) even labels energy as a "*linchpin"* in Ukraine's dependence on Russia. These claims are substantiated by the official document dated 21.01.2014 concerning Russian energy strategy, where energy is *"understood not only from a narrow point of an exporter that maximizes his short-term income, but as a means of solving both national and global problems"* (Minenergo RF 2014 (1), 23[4]).

The most prominent tools in this regard are transit gas pipelines and Ukrainian access to nuclear fuel from Russian Federation. Both factors are substantial contributors to Ukrainian energy security and electricity production. Gas export and transit remains one of the most discussed energy tools in Russian arsenal. It is also relevant for electricity, due to the existence of gas-fueled Thermal Power Plants (TPPs) in Ukraine, as well as the need to substitute gas with electricity in case of lack in supplies. The arguments can be elaborated by looking at Ukrainian electricity system.

Ukrainian electricity system is rather large. Energy as the point of attention is qualified by the statement from Energy Minister of Ukraine, who proclaimed that *"Fuel-Energy Complex is the foundation for the national security and economic independence of Ukraine (…) and the most important sector of this Complex is electricity"* (Translation from MPE 2014 (1)). Thus, electricity is perceived by the government as the most important energy system in the state's Fuel-Energy Complex. The parts of this system are power-generation, transmission, and distribution, which together form the Joint Energy System (JES) of Ukraine (Ibid).

In 2013, the country with a population of ca. 45 million citizens had a consumption of roughly 137,5 TWh excluded losses and industry's own use. Electricity production was 194,4 TWh, including 9,929 TWh of exports. From that number, 83,2 TWh was produced from nuclear power, 81 TWh was produced from coal, 14,5 TWh from hydro and 14 TWh from gas (IEA 2017). IEAs data for 2014 inform that the share of nuclear rose to 88 TWh, whereas electricity production from coal and gas has shrunk to 70,5 and 12,7 TWh respectively. Since

[4] All translations are by the author.

there is little electricity production in Crimea, the decline should be attributed to the conflict in Donbass and other factors within mainland Ukraine.

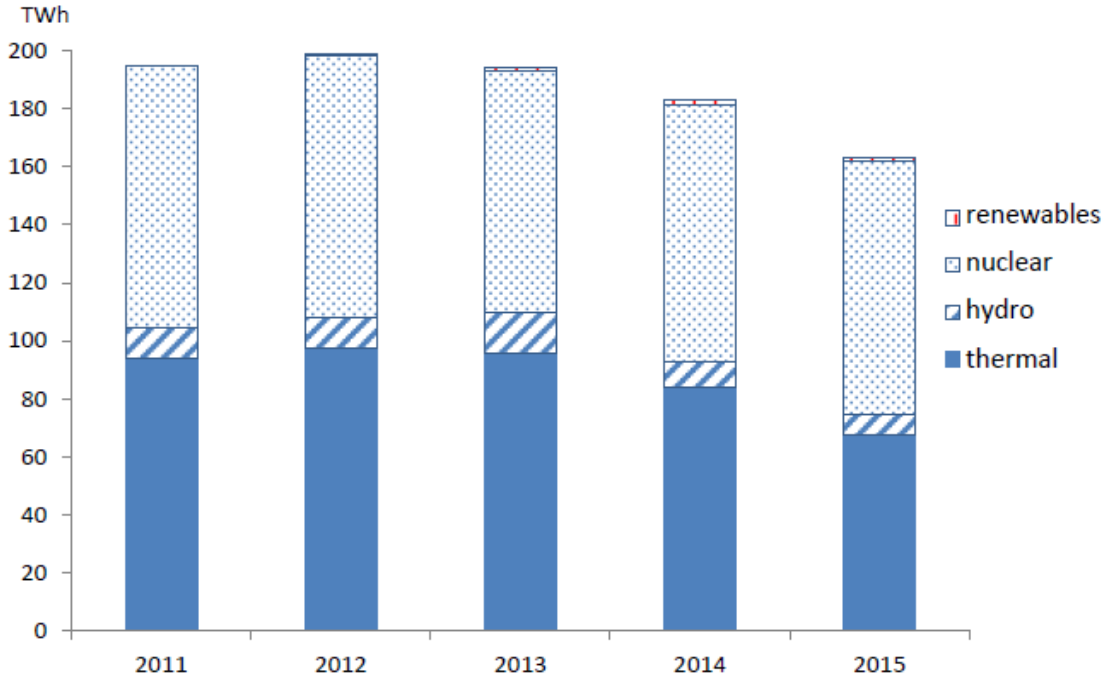

Figure 1: Electricity production by year in Ukraine. Retrieved from Zachman and Naumenko 2016, page 11. "Figure 9: Electricity generation by fuel". Referencing source: Ukrstat.

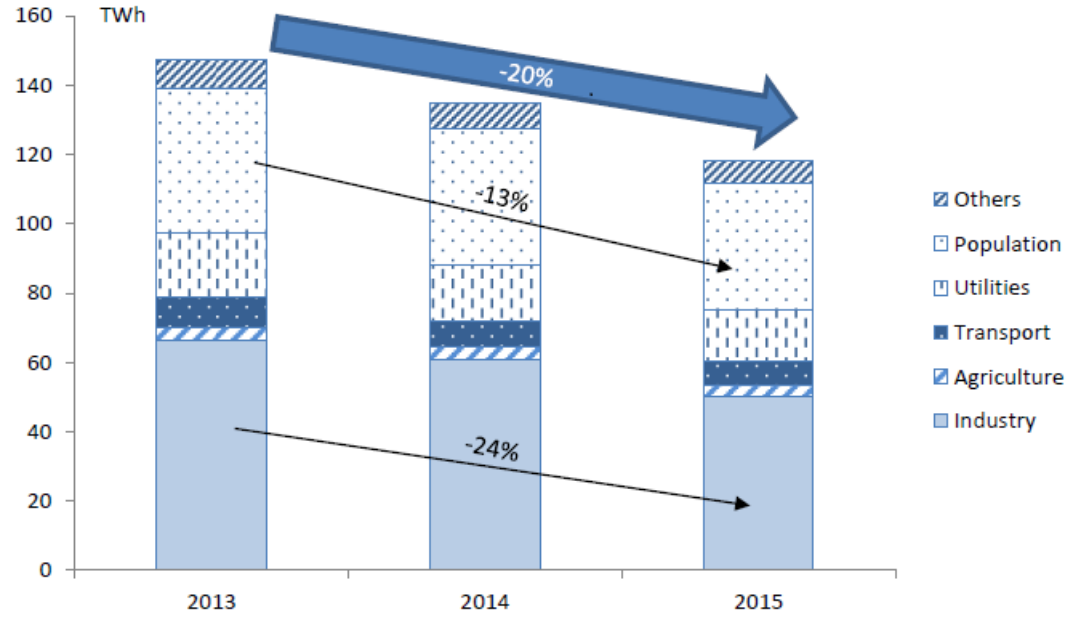

Figure 2: Electricity consumption by end-user in Ukraine. Retrieved from Zachman and Naumenko 2016, page 10. "Figure 8: Electricity consumption by user". Referencing source: The Ministry of Energy in Ukraine.

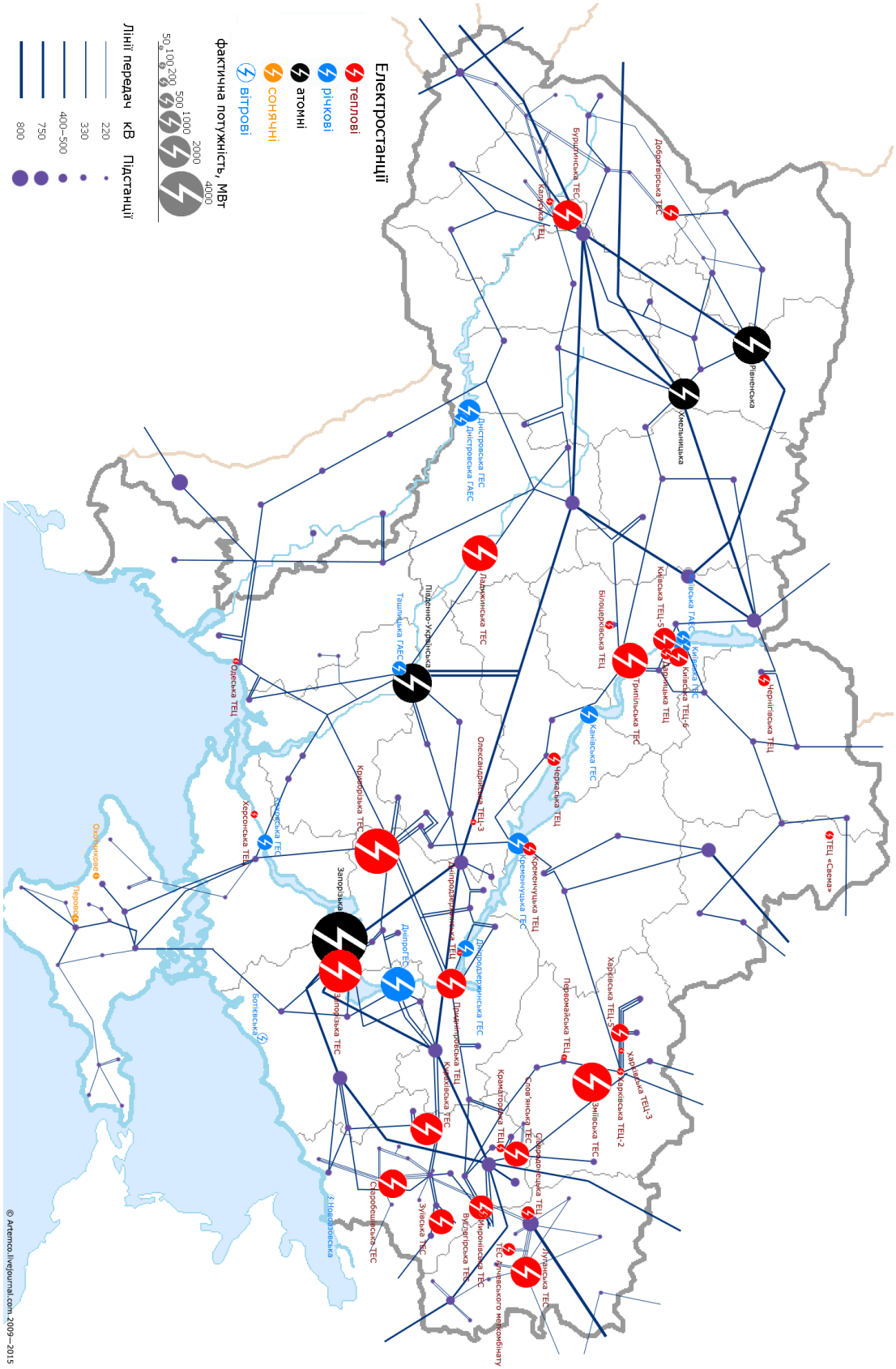

Figure 3: A simplified scheme of Ukraine's electricity grid (Unofficial). Credit should be given to Artemco at Artemco.livejournal.com (2009-2015). Retrieved from: https://upload.wikimedia.org/wikipedia/commons/f/f4/Електростанції_України.gif

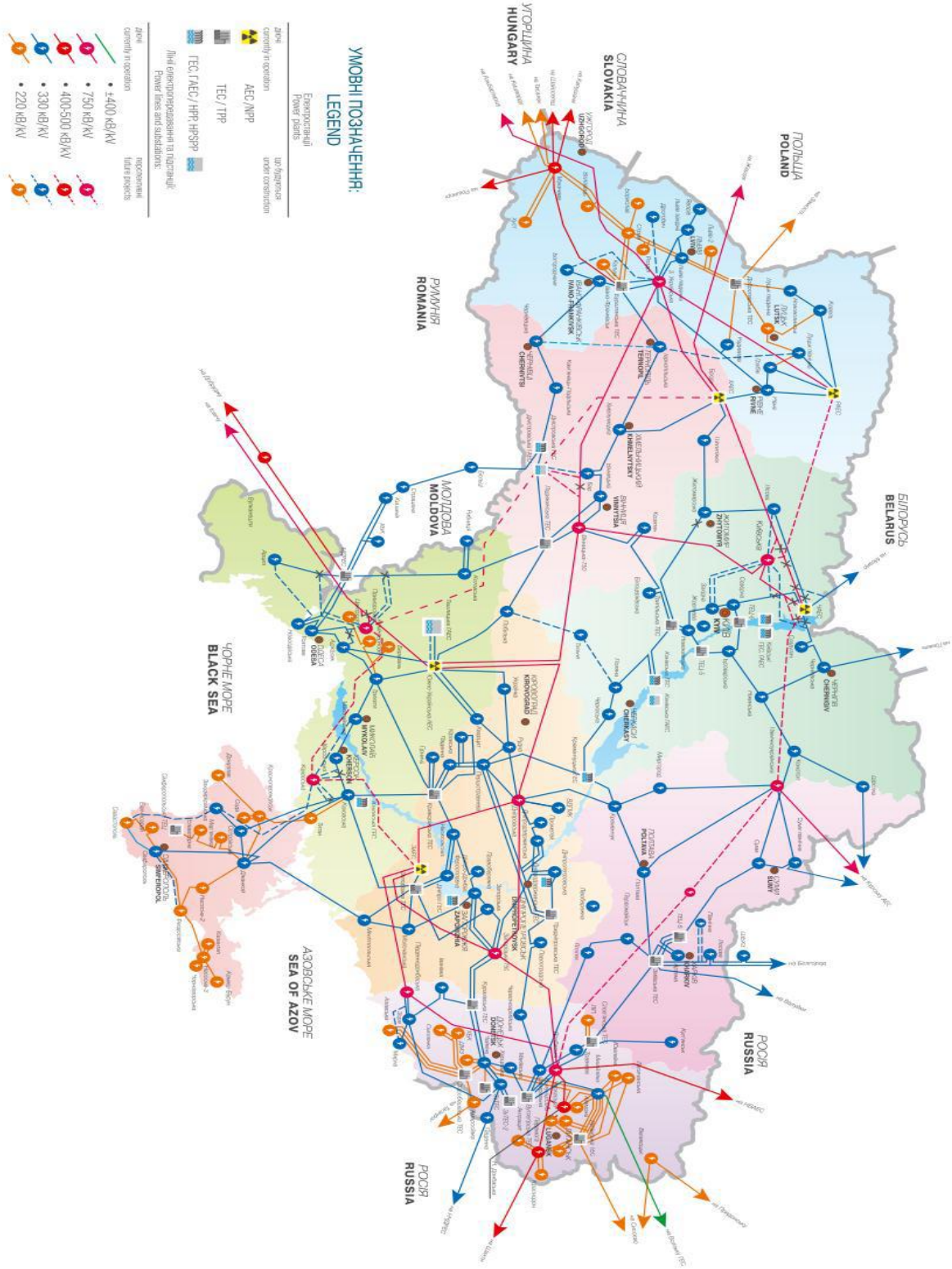

Figure 4: Ukraine's electricity grid (Official). Retrieved from NatCom, 2016, page 16. "Рис. 2.1.2 Схема об'єднаної енергетичної системи України". High resolution: UkrEnergo 2017.

4.3.1 Nuclear-based electricity

Figure 1 and *2* provide an approximation of electricity generation and consumption for the relevant years, informing that 2015 saw a further decline in both production and consumption of electricity. Nevertheless, as of 2015 Ukrainian nuclear power plants (NPP) had a steady production of 87,6 TWh (UAenergy 2016 (1)). This amounts to more than 50% annual production, partaking merely 25% of total generation capacity (OECD/IEA 2015, 356). There are 4 nuclear power plants in Ukraine (excluding Chernobyl), with Zaporizhska being the biggest with a maximum output of 6000 MW. This NPP alone produced 39,3 TWh of electricity in 2015, a ¼ of the total electricity generation in Ukraine that year (UAenergy 2016 (1)). Others are Rivnenska, Pivdenno-Ukrainska, and Khmelnytska (marked by black circles in *Figure 3*).

The power-plants were built in the Soviet Union by Soviet scientists, and therefore require technical parts and system-knowledge currently possessed by Russia. Most of the nuclear fuel is also purchased from the Russian Federation. One should mention that Ukraine paid 588 million USD throughout 2014, and 470 million USD during 2015 for this fuel only, excluding other financial transactions for maintenance and technical assistance (UAenergy 2016 (2)). This level of transactions and vast Ukrainian dependence on Russia makes nuclear electricity a particularly vulnerable point in the Ukrainian electricity system.

The high vulnerability and unbalanced interdependence in nuclear electricity makes it a suitable energy weapon for Russia. Then again, a major incident spurred by deliberate action can have catastrophic consequences and evoke massive reactions from international community, making it a somewhat less plausible instrument for political pressure. The counter-argument is strengthened by statistics, where nuclear electricity production increased during the crisis, meaning that relations between conflicting parties were somewhat stable or that technological solutions were introduced. Nonetheless, the state of affairs and the huge potential for Russian meddling makes nuclear power an indispensable theme to keep in mind during the investigation.

4.3.2 Coal-based electricity

A significant part of the decline in electricity production can be attributed to standstill in TPPs located in Eastern Ukraine. As shown in *Figure 3* and *4*, several large TPPs are located around Donetsk and Luhansk. However, the area has been electricity deficient due to the large

energy consumption of the industry. Nevertheless, Donbass is an important part of Ukrainian electricity system since it is responsible for around ½ of Ukrainian coal production. One specific type of coal which is not easily replaceable is called anthracite, and mined primarily in this area of Ukraine. Around half of Ukrainian TPPs uses this coal as the main fuel source.

The anthracite type is the highest quality of coal and constitutes around 1% of world coal reserves, making it relatively expensive and scarcely accessible (World Coal Institute 2009, 2-4). An appropriate remark on the topic is that the largest estimated reserves of anthracite are located in China, Russia and Ukraine, whilst newer projects are situated in geographically remote locations vis-à-vis Ukrainian territory (Meister 2009, 6; 10). Additionally, many power plants in Ukraine are specifically constructed and adapted to anthracite as the main fuel source. Therefore, a halt in coal deliveries from Donbass to Ukrainian TPPs may cause long-term issues and disruption of electricity production. Remarkably, Ukraine has historically been a coal importer, but an electricity exporter (OECD/IEA 2015, 337). The coal was mainly imported from Russia and the U.S (Ibid).

Again, Russia may see coal production and export as two major pressure points towards Ukraine. Given that Russia either controls or possess close ties with separatist groups in Donbass, the production of coal and its deliveries to Ukrainian TPPs appear as the most likely target of a Russian energy weapon. Hence, incidents on the matter should act as essential trace evidence in the study. The visible decline in the share of thermal power as a source for electricity in 2014 and 2015 compared to previous years acts as a point of reference and requests further analysis (*Figure 1*). *Figure 5* shows that coal stocks in Ukraine has decreased after the onset of the crisis, possibly explaining a decline in the share of thermal power generation in Ukrainian electricity system. Thus, several material links are present and the unbalance favors Russia. Evidence of deliberate supply interruption spurred by Russian interference in terms of coal will therefore be understood as a tight hoop test for causal inference on application of energy as a weapon.

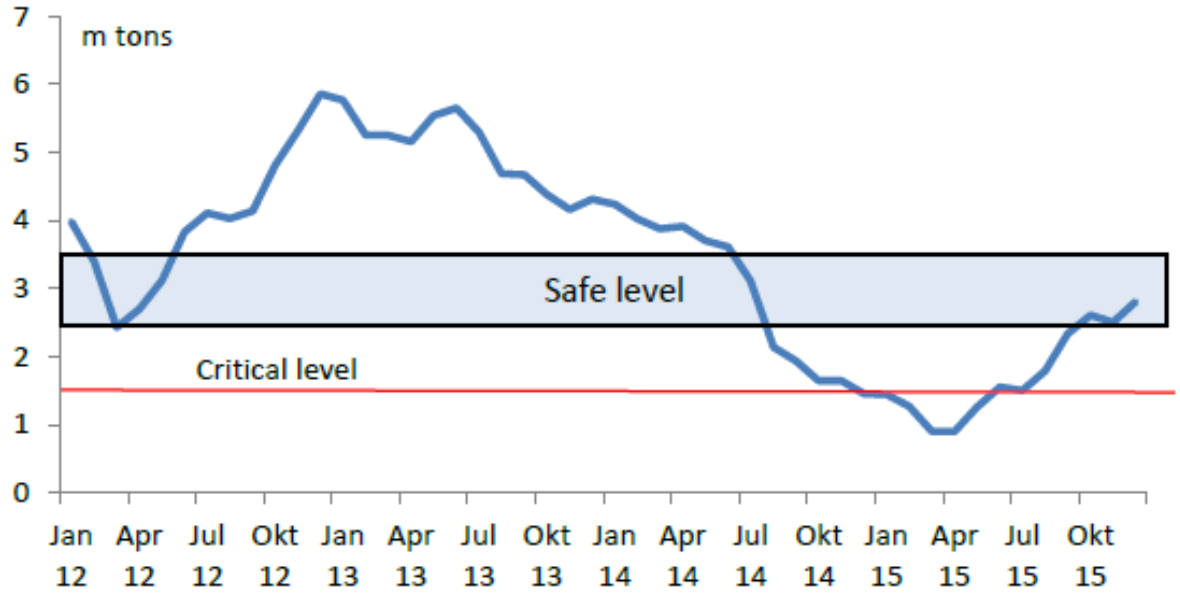

Figure 5: Coal stock in Ukraine, quarterly from year 2012 to 2015. Retrieved from Zachman and Naumenko 2016, page 13. "Figure 10: Coal stocks". Referencing source: The Ministry of Energy in Ukraine and EIR analytical centre.

4.3.3 Natural gas-based electricity

Natural gas plays a lesser role in Ukrainian electricity system, ranging from approximately 12 to 14 TWh annual production. Nonetheless, the ca. 10% contribution can be an important part of the system by covering peak loads in electricity consumption, system harmonization, and emergency relief (OECD/IEA 2015, 356).

One notion is the vast prevalence of gas in the overall Ukrainian energy system, used for heating, cooking appliances, and electricity production (Ibid, 333; 336). Thus, large gas reserves can substitute other sources of electricity in case of necessity, making it a fungible commodity that increase system resilience. The setback of natural gas in electricity production is the price aspect, since gas is considerably more expensive than coal (Zachman and Naumenko 2016, 11). Anyhow, an absence of gas supplies and damage to gas infrastructure will have a significant, negative impact on energy security and long-term operationality of Ukrainian electricity system.

As already discussed, the relationship in natural gas between Russia and Ukraine is complicated and prone to many assessment complications. Russian gas as an energy weapon has been highlighted earlier, with research largely discrediting it as unwieldy and ineffective.

Nevertheless, as a supplementary and secondary weapon targeting Ukrainian electricity system, natural gas might play a bigger role than previously assumed. On the other hand, the low contribution of gas to Ukrainian electricity system and the seemingly high cost of its utilization decreases its potential as a means. Accordingly, there should be little or no evidence of gas disruptions affecting the electricity system of Ukraine. The issue of transit also creates a 'bond' of mutual reliance between the adversaries, somewhat reversing the unbalance.

4.3.4 Electricity infrastructure

Another source of electricity in Ukraine that is not negligible is hydro (7 plants), because of its role as a flexible producer which complements the electricity system and compensates for production rigidities in thermal power plants (OECD/IEA 2015, 356). Since these run-of-the-river hydroelectric plants are located deep within Ukraine, the potential for Russian interruption seems low. Even so, one should mention dry weather conditions that contributed to a decline in hydroelectric production in 2014 and 2015 (Zachman and Naumenko 2016, 11). These natural variations may have a contributing effect on concerns regarding electricity production. Additionally, the decline in hydroelectric production cultivates the potential to exploit coal, gas and nuclear as means to achieve political ends and pressure Ukraine into concessions.

Electricity sources are not the only important point in question. The transmission of electricity holds a vital role in the system. Ukrainian electricity grid was comprised of around 22 thousand kilometers of high-voltage transmission lines per 2015 (NatCom 2016, 14; OECD/IEA 2015, 356). The long stretch makes protection of lines a difficult endeavor, increasing the potential for physical disruption. Although, the dimensioning standards have inbuilt precautions, such as the general rule to add an extra cable to the stretch, thereby safeguarding electricity transmission if the main line goes out of function. Moreover, electricity lines are operated by UkrEnergo, which runs maintenance- and repair-crews, rapidly deployable on most sites in case of emergencies.

One hundred and twenty substations are located in Ukraine to convert and distribute suitable current. A weak link in this regard is the low number of substations operating high-voltage currents of biggest capacities, with 8 substations for 750 kW and only 4 stations managing

500-400 kW (NatCom 2016, 14). Accordingly, these substations should be the primary concern of both parties and a point of interest for the study.

As depicted in *Figures 3 and 4*, the electricity network in Ukraine is connected to neighboring countries for system balancing and trade. In western Ukraine, the Burshtyn "Island"[5], and high-voltage power lines are synchronized with the European Network of Transmission System Operators for Electricity (ENTSO-E) (MPE 2014 (1)). However, this connection is an unusual circumstance for Ukrainian electricity system, since most of the Ukrainian electricity grid is run parallel to Russian, additionally incorporating Belarus and Moldova (OECD/IEA 2015, 362). Therefore, the western parts of Ukraine seem relatively safe from disruption while the Eastern part of the system, being connected to Russian, is more exposed to pressures and meddling. The latter connection is also a potential weapon which may be applied by both countries. On the other hand, the interdependence in system balance makes it a double-edged weapon with a backfiring probability, eventually strengthening the 'bond' between parties. The overall presented arguments make electricity transmission prone to damage and disruption, but involve relatively high costs.

A major challenge for the Ukrainian electricity system is its condition. The system is generally outdated and experience continuous deterioration. The majority of its components were commissioned during 1960's & 70's and designed even earlier, making the system less fit to present needs and requirements (Ibid, 356; 363; NatCom 2016, 17).

While the number for transmission loss is fairly normal, the distribution losses are higher compared to European average (NatCom 2016, 14-15; OECD/IEA 2015, 363). The trend is steady, although expected to be slightly negative if investments and maintenance are postponed (Ibid). This worn condition of the system implies possible incidents and other safety hazards. Therefore, a portion of incidents can be attributed to these realities. The old infrastructure with fewer safety measures and precautions increases the possibility of accidents, aggravates potential emergencies, and lowers disruption costs for adversaries wishing to exploit these conditions.

[5] Comprised of Burshtyn Thermal Power Plant (TPP), Kalushskaja Combined Heat and Power Plant (CHP) and Terebla-Riksaja hydro-electric station.

4.3.5 Electricity governance and corruption

Ukraine's electricity administration is separated by generation, wholesale market, transmission, and distribution (NatCom 2016, 15). Still, a relatively small number of actors govern the electricity system. The nuclear power generation is controlled by government-owned Ukrenergoatom, whereas most of the thermal power plants have been privatized. The private company DTEK, owns and operates most of these plants, including the Burshtyn "Island" (Zachman and Naumenko 2016, 11). Moreover, DTEK owns a large share of Ukrainian coal mines, positioning itself in all parts of the coal energy chain, which makes it a key player in the sphere of electricity. When it comes to natural gas generation, the state-owned NaftoGas is a main actor, owning and managing nearly entire energy chain of the gas system in Ukraine.

The wholesale electricity market is managed by state-controlled Energorynok, while UkrEnergo is the state-owned electricity company with a monopoly on operation and ownership of all the transmission network in Ukraine. 'Oblenergos', initially owned by municipal governments, have since 1995 been the regional distributors and retailers of electricity. Some of them were later privatized, with control transferred to main investors (OECD/IEA 2015, 340-343).

Several state ministries are relevant for the energy system in Ukraine, with Ministry of Energy and Coal as the most prominent. This ministry is responsible for most energy policies, coordination, and information flow to the government (Ibid). When it comes to foreign investment in energy, both Ukraine and Russia's main sources of foreign direct investment (FDI) is the 'roundtrip capital', which is genuinely local capital previously moved to tax havens such as Cyprus, British Virgin Island, Luxembourg, Bahamas, and Bermuda (Kirchner, Kravchuk, and Ries 2015, 5). More importantly, the two countries' capital have been flowing mainly between them, making it reasonable to believe that Russian capital is present as an FDI source in the electricity system of Ukraine and vice versa, adding another layer of material systemic links. However, these FDI patterns indicating vested interests of tycoons and policy elites make them mutually interested in maintaining stable trade and relations between the two states, ultimately strengthening their 'bonds'.

Somewhat related, the complicating factors in the energy system of Ukraine are the widespread corruption and oligarchy, making them main hinders to energy security of Ukraine (Riley 2016, 1). Former Prime Minister of Ukraine, Arseniy Yatsenyuk have publicly

admitted in a BBC interview that *"the biggest corruption was(is) in the energy sector (…)"* (BBC 2017). This high degree of corruption could potentially spill over on the electricity system throughout the conflict.

More generally, corruption has been a prominent source of instability for both Russia and Ukraine, ranking them steadily below 120 out of 177[6] for the last ten years, an assessment in the Corruption Perception Index by Transparency International (2017). One reason is the poorly functioning public institutions, a trend which have continued since the fall of the Soviet Union. Additionally, bribery and low trustworthiness has been a common denominator (Ibid). A fact that few people control the bigger part of these countries' resources and industry, creates a deep divide between the rich and the poor. Oligarchs have since the early 1990's become the most influential actors in the countries' politics and are believed to control the media (Åslund 2014, 64-66; Leshchenko 2014, 54). Their whims and interests may therefore be central to the operation of the Ukrainian electricity system.

An older example of advanced corruption in the gas and energy sector is the case of Pavlo Lazarenko, who was the energy minister during the 90's and illegally acquired a fortune of around 200 million USD (Soldak 2012). More recent examples are the cases of Sergiy Kurchenko, Mykola Martynenko and Dmytro Firtash. The first entails a 27-year old manager who within one year acquired a business empire in energy trade and banking worth several billions USD, most probably due to "a helpful hand" from Former President Yanukovych (Åslund 2014, 65). The case of Mykola Martynenko is particularly interesting since it touches directly upon the Ukrainian electricity system. Martynenko, who headed the Ukrainian Parliament's Energy and Fuel Committee until November 2015, was already in 2013 charged with bribery in Switzerland. The accusations are centered on a deal which allegedly permitted Škoda to supply equipment to Energoatom in exchange for a 29 million USD bribe (OCCRP 2015).

Dmytro Firtash is a Ukrainian tycoon who like many others, gained a fortune from gas trade (Åslund 2014, 65). He is also the founder of the conglomerate Group DF, which is involved in chemical industry, media, real estate, and gas (GroupDF 2017; Leshchenko 2014, 54-55). He is often accused of having very close ties to both Yanukovych and Russian government (Groendahl, Reznik and Esteban 2017). A separate persecution case was launched against him

[6] Lower rank indicates more corruption.

by the U.S government, suspected for a corrupt deal and bribery in India. Firtash is currently (2017) staying in Austria, expecting a legal trial. His involvement in the electricity system is perceived as less important, but may still facilitate pressure on Ukrainian electricity system through his ties with Russian influential individuals.

The last important person that should be mentioned is Rinat Akhmetov. Today's richest man in Ukraine controls DTEK, the beforementioned energy holding company in Ukraine. Moreover, Akhmetov is a former member of Ukrainian parliament. Since DTEK's establishment in 2005, the company has gained immense control over coal and electricity provision. Not surprisingly, the holding is also the biggest private company in Ukrainian gas production (DTEK 2017). DTEK has released information stating they produced 29.2 million tons of coal, amounting to 70% of total production in Ukraine. The company also claims production of 25% annual electricity and distribution to 4.4 million customers (DTEK Energo 2017).

The vast influence of Akhmetov over Ukraine's electricity system combined with ties to the former President Yanukovych are sufficient to raise some concern (Leshchenko 2014, 55). Since the revolts in 2014, Akhmetov's business has been closely followed by Ukrainian governmental bodies and sporadically prosecuted on varying charges (Olearchyk 2015). Given his background, Rinat Akhmetov might act as an intermediate between interests which are his own, Russian, and Ukrainian. Similarly, DTEK can be used as a pressure point by Russia. Accordingly, DTEK and Akhmetov's actions might contribute to analytical evidence and are closely followed throughout the study.

4.3.6 Crimea as a special circumstance

Turning the discussion towards the Crimean Peninsula one should again mention its vast geostrategic importance. Firstly, it enables extended Russian military power projection over the Black Sea region through the Sevastopol fleet[7]. Secondly, Crimea holds Ukraine's largest share of oil and gas reserves. Thirdly, the Black Sea is a major transit route for energy resources, both Russian and Caucasian (Horell 2016, 2-3). This observation, combined with the fact that Donbass possesses Ukraine's largest coal deposits results in a wide range of

[7] Russia has relocated a number of ground units and military equipment to Crimea after the Annexation (Horell 2016, 3)

energy vulnerabilities for Ukraine. However, in terms of electricity, the Crimean Peninsula have received little attention.

One theme that makes Crimea a significant part of the Ukrainian electricity system is the renewable energy industry located in the area. Wind and solar energy projects in Crimea were helpful pilots in introducing renewables to Ukraine and generating genuine foreign investments in the country's electricity system (Korrespondent.net 2012).

From 2010 to 2012 four comparatively large solar parks have been built on the Peninsula (Minenergo RF 2015). One of them is 'Perovo' Photovoltaic Power Plant (PVPP), with a 106 MW production capacity, making it one of the largest solar energy projects in Europe in 2011 (Activ Solar 2011). Others are 'Ohotnikovo' (83 MW), 'Mityaevo' (32 MW) and 'Rodnikovoye' (7,5 MW) (Activ Solar 2013; Minenergo RF 2015). Additionally, 'Nikolayevka' (70 MW) was launched 1. August 2015, while 'Vladislavovka' (110 MW) power plant, set to start in 2016 is still unfinished as of May 2017. These solar parks may be considered substantial milestones in Ukrainian strive for energy diversification and independence from Russian energy sources.

Perovo, along with many other solar plants in Ukraine were built by Activ Solar, a company registered in Austria with supposedly European shareholders. However, some sources indicate ties to massive Russian funding and loans (Roca 2011). The founders and the CEO of the company are former Ukrainian oligarchs within the Kluyev family. Andriy Kluyev and his brother, Sergiy Kluyev, were both active parliament members in Ukraine until February 2014. Moreover, Andriy was a close partner with Yanukovych and held several high-rank posts under his government, such as Deputy Prime Minister of Energy, Minister of Economic Development and Trade, and Deputy Prime Minister (Liga.net 2014 (1). Andriy Kluyev lobbied actively for increase in 'green' subsidies and other benefits for solar power, while he was involved both Activ Solar and the government. These ties were revealed already in 2012, but no further action was taken (Korrespondent.net 2012, Daly 2012).

After the 2014 revolts in Ukraine, Andriy Kluyev fled to Russia. He was later prosecuted for corruption and embezzlement by an Ukrainian court (Reuters 2015 (1)). European Union chose to freeze his assets in March 2014 on accusations of misappropriation of budgetary means (BBC 2014 (1)). After the Annexation, the decrease in subsidies by Ukraine, and general disarray, Active Solar in Crimea experienced financial problems. In April 2015,

Russian governmental banks seized the property (Kommersant 2015 (2)). Per May 2017, Crimean government operates the plants. Mainland assets of Activ Solar was later acquired by the Chinese Company CNBM, which currently owns and operates these plants (Epravda 2016). Activ Solar filed for bankruptcy in February 2016 with a debt of half a billion Euro, making it one of the bigger bankruptcy cases in Austria that year (Die Presse 2016). Ironically, a judicial decision from Kyiv in October 2015 ordered the company to pay 56 million Euros as an arbitration award to the state, but the repayment was never completed (Ibid).

When it comes to wind power, the Crimean Peninsula is somewhat less developed. Nevertheless, Crimea has 7 wind parks, with a total capacity of around 90 MW (Minenergo RF 2015). Like solar plants, also these are operated by the Crimean government. Together, the renewable sources of electricity had a capacity of 300 MW, providing ca. 300 GWh in 2013 (Forbes 2013). The capacity figure is around one third of Crimean need as of 2015, but one should not be fooled by it. The weather factors such as irradiation and air flows are determinant to the electricity production. In 2013, generation from renewable sources amounted to 6.7% of Crimeas annual electricity consumption. Therefore, these renewable sources must be connected to a stable grid for safe and steady function.

This kind of stability was until late 2015 provided by the Joint Energy System of Ukraine, ref. *Figure 3* and *4*. Three major power lines of 330kV and one 200kV line could potentially provide Crimea with 1250 MW from the mainland. A second central theme of the Crimean electricity is therefore its dependency on Ukrainian electricity system and infrastructure. As of March 2014, Crimea had a potential production capacity of ca 500 MW, counting 4 TPPs and the renewable sources. Still, the peninsula needed an additional flow of 900-1200 MW at peak consumption to satisfy Crimea's need, stabilize its own generation and assure proper system function (Crimea.RIA 2015 (2)). This dependency can be regarded as one of the most strengthening factors of the 'bond' between states.

As the rest of Ukraine, Crimea experienced issues with suboptimal transmission network and outdated equipment. In 2013, Ukraine invested around 18 million USD on modernization of the transmission lines of Crimea (QHA 2014 (1)). Although being a comparatively small sum, the renewal of the system and sunk costs it entailed could have been important to defend supply continuation from the mainland, supporting cooperation with Russia.

This link might bind the adversaries to cooperate, reduce weaponization and avoid confrontation in the sphere of electricity. However, given the added Ukrainian dependence on gas and nuclear fuel from Russia, the latter has an advantage in dependence balances.

This pattern favors Russia to a great degree, leaving little room for Ukrainian maneuverability. The expected turn of events becomes one where Russia exploits its position while Ukraine must adapt and reply. Crimean dependence on electricity transmission appears to be the main insurance for Ukraine against Russian energy weaponization. For Russia, resilience of Crimean electricity system should hold a top priority throughout the period, since it is the most fragile point of the given electricity relationship. Thus, when higher levels of Crimean electricity security are achieved, one might expect more energy weapon use.

Summing up, the chapter presented a high number of material systemic links that expose both states to energy weapons. The balance of links favors Russia. The adversaries “bond” can be presented by Russian interests in supply to Crimea in exchange for coal supply to Ukraine from Donbass, the parallel function of the energy systems, and the vested interests of tycoons. Thus, this evidence passes two straw-in-the-wind tests, one concerning material links and the other regarding unbalance.

5 Analysis

5.1 Layout of the chapter

The analysis collects observations and studies the evidence in four phases. First phase is concentrated on events from Annexation until mid-2014. The second phase looks at events until the end of 2014. Third phase investigates the incidents until the onset of Crimean Blockade in September 2015. The fourth concentrates on the period from Crimean Blockade and until the last days of 2015. The first phases will briefly highlight main findings to aid further investigation process. The analysis will try to incorporate all the abovementioned components in the electricity system, but mainly concentrate on the available observations. The final part of the analysis will summarize results and evidence, eventually leading to a discussion of the main questions posed by the thesis.

5.2 March - June 2014: Unclear intents and ambiguous securitization

Energy security and electricity system received political attention shortly after the entry of "little green men" to Crimea. Already on March 4th, Ukrainian energy minister Yuriy Prodan stated that *"Energy Security of Ukraine is (…) in the foreground"* (Translation from MPE 2014 (2)). In the same session, he informed about the Russian takeover of the company Chornomornaftogaz with its gas reserves of at least 100 billion cubic meters (bcm). Simultaneously, he declared intensification of work on nuclear energy security, explicitly mentioning diversification of nuclear fuel. Lastly, he urged to *"settle energy issues (with Russia) through the field of economics rather than politics"* (Ibid).

This statement is quite telling since it emphasizes general resilience for Ukraine, at the same time making some lesser threats to Russia regarding the long-term demand of nuclear technology. Nevertheless, this statement and the persuasion of Russia to solve issues on the economic arena resembles a desecuritizing move to lower the tensions. The statement also seems to lack the call for extraordinary measures. Instead, Prodan is calling for more openness and transparency in the sphere of energy, a rather soft move in this regard. Thus, the move does not appear to clearly pass the test considering securitization or behavioral change.

The day after Prodan's statement, Dmitry Rogozin, a Russian Deputy Prime Minister voiced problems with nuclear fuel transit through Ukraine as well as export to Ukraine, blaming and shaming the destabilized condition of the country. He also mentioned the state of Ukrainian nuclear fuel reserves, which was supposedly low, only enough to provide fuel in March and April 2014. Further, he uttered a need to involve IAEA to observe the situation and inspect the sites (Kremlin 2014). This rhetoric seems well suited to discredit Ukrainian government and simultaneously reply to the Ukrainian "threat" of demand disruption.

Putin himself spoke at the meeting, where Ukrainian debt to Russia was a topic along electricity. There he mentioned that *"no one ever gets anything for free"* while at the same time urging not to let energy industry *"become hostage to the political situation."* (Ibid). The statement is rather like the one made by Prodan, as both mention the need to remain in the sphere of economics, supported by a firm statement of one's position. By that token, also the Russian statements fail to evoke obvious securitization and depart from Russo-Ukrainian business-as-usual.

To support the observations one should mention that an actual expert meeting on nuclear transportation was held in Hungary March 9th, 2014, where representatives from Ukraine, Russia and Hungary participated (SNRIU 2014 (1)). The collaborative meeting provides additional proof of politicization and desecuritization of electricity system components. These observations add up to evidence of restraint by the parties at the time.

Given that information is correct, the securitization rhetoric of nuclear fuel export is ambiguous, which hardly enables it to pass the straw-in-the-wind test. Neither was clear behavioral change observed.

The seemingly productive relationship was put to the test during the next two weeks. On the day of formal annexation of Crimea, Russian energy ministry and electricity companies held a discussion on the topic of electricity provision to Crimea. Russian energy minister, Alexander Novak said that Russia works for reliable electricity supply to Crimea. In addition, he expressed a wish for continued import from Ukraine, stating that there is no reason cut supply as Russia provides consistent payments. He also pronounced the continuous work on diversification and long-term resilience of the electricity system. Lastly, and maybe more precarious was the uttering of Russian preparations and possession of operational means to tackle the extraordinary situations that might arise (TASS 2014 (1); TASS 2014 (2)).

The first part of the statement expresses restraint while signaling distrust on Ukraine as a reliable supplier by emphasizing emergency preparations. The second part of the statement is more in line with securitization, since it gives an impression of exceptional means and retaliation in case of cutoff. Novak seems to lean towards resilience argumentation but reaffirms it with preventive measures. However, knowing the Ukrainian dependency on Russia in other sectoral components of the electricity system, the extraordinary means available to Russia did not necessarily infer militarization. Accordingly, the rhetoric gives an impression of cautious securitization, threatening to weaponize electricity as a retaliatory response. Simultaneously, securitization is balanced by affirmation of control and the wish to cooperate.

19th of March 2014 Yuriy Prodan visited Brussels for a meeting on energy security, discussing gas diversification and integration of Ukrainian energy system in the European Market. The meeting is making strong resemblance to the one held in Crimea, where Ukraine partly securitizes energy and oppose Russian interests by calling for further integration with Europe MPE 2014 (3).

The first actual emergency incident occurred already a week later (23-24), with Deputy Minister of Crimean government Rustam Temirgalijev announcing that "*electricity to Crimea has been cut by half*" and labeling it "*a move from Kiev*" (RIA 2014 (2)). In the same interview, he expressed readiness and preparedness to tackle the issue, mentioning a capacity of 900 diesel generators that were moved to Crimea. During the broadcast, he also introduced the start of 'rolling blackouts' on the peninsula to secure vital infrastructure. Moreover, it was claimed that Russia could solve the main problems in electricity in case of a total transmission halt within two months (Ibid).

To comment on the first issue, the claim is partly truthful, since it were real cuts in electricity transmission to Crimea, as reported by the Ukrainian Energy Ministry (MPE 2014 (4)). However, their version is slightly different, informing that the technical cutoff amounted to 296 MW, prompted by repairs on one 330kV line and preliminary hindrance of a potential emergency situation on another. Furthermore, the Ministry claimed that the volume of electricity remains the same and that urgent repairs would be finished within one day (Ibid). Given that one knows the overall transmission capacity to be 1200 MW, a 296 MW reduction appear less crucial and manageable since the emergency shutdown was taking place on a Sunday evening (approximately 21:00 local time) with the industry idling. Nevertheless, it

also meant that a lot of people were at home using electricity. Seemingly, both Ukrainian and Crimean government acted due to their technical protocols for the occasion. The incident itself is comprehendible with rather low intensity and scope. However, when it comes to reasons for the cutoff, the parties disagree.

A motive for Ukraine to use electricity supply as a weapon could be to pressure Russia on the issue of asset seizures in Crimea and the development in Eastern parts of Ukraine (CSIS 2017 (1)). However, given the dependence on gas and nuclear, combined with Russian search for a motive to intervene in Donbass, such a move would be somewhat counterproductive.

Anyhow, Crimean officials did not hesitate to blame Ukrainian government for the cutoff, calling it an *"attempt of blackmail"* (TASS 2014 (3)). Again, Russia is looking to discredit Ukraine as a stable and reliable state. On the other hand, the Crimea reassured that the state is prepared to deal with every electricity emergency within one and a half month, a claim that appears overstated. Temirgalijev goes on saying that the incident will backfire on Ukraine in terms of gas and further citizen unrest in Donbass (Ibid). The rhetoric is avoiding existential language, but securitizes energy with flagrant statements. However, it lacks back-up through concrete proof.

The observations pass some "straw"-tests and one "smoking-gun". However, the the motive and willfulnes are unclear, which hinders the event from passing the "hoop"-test. Alternatively, the observations could be seen as evidence of the first weaponization of electricity by Ukraine. On this basis, it is hard to realize that Ukraine received concession because of the act. Rather, Russia seized even more Ukrainian property on March 24th, leading to Ukraine's troop removal from Crimea (CSIS 2017 (2)). Russian official's language of securitization in electricity may therefore acted as a pretext and legitimization for further military activity. Even when concluding that the incident is random, Russian framing of it as willful disruption by Ukraine's government facilitated conflict.

On the same day, Yuriy Prodan made an announcement targeted at coal mine workers in the East, trying to reassure them of stable conditions and ongoing investments in the coal industry. He urged to be observant about dissemination of false information regarding mine closure and recalled an ongoing cooperation with unions and employee organizations (MPE 2014 (5)). The move was made seemingly to reduce tensions, desecuritize the ongoing situation, to keep the industry politicized, and maintain governmental control. However, it is

also a sign of disturbance in the industry, possibly spurred by separatists and other central actors.

March 25th, 2014, Prodan held a press conference on energy security of Ukraine. On the meeting, electricity provision was discussed. One central topic was the nuclear supply, on which he reassured the stability of supply and safety of operation. Further, he addressed the coal industry voicing measures that were taken to secure payments to employees. Maybe the most important was the case of electricity transmission to Crimea. Briefly mentioning the incident, Prodan stated that Crimean system is operating as a part of Ukraine and assures supply as long as the distribution companies are compensating for provision. Even the prices remain at the same level as before, funding it on recognition of Crimea as the territory of Ukraine. However, he announced a cut in green feed-in tariffs[8] to Crimean companies and a denial of a bilateral agreement proposed by the Russian side MPE 2014 (6).

The short span of time and the rhetoric provides even more support of Ukraine trying to desecuritize and stabilize the situation at a politicized level without sliding back on their position as the main source of Crimean electricity. Interestingly, Ukraine refrained from increasing the price on the commodity. One reason is of course due to their stance of Ukrainian Crimea, but another reason may have deeper implications. Given the interdependence, Ukraine may have committed to a fair pricing as a way to request a similar response from Russia and deescalate tensions. His announcements may therefore be characterized as a preventive resolution to lessen probabilities of intentional, economical threats. On the other hand, Ukraine stopped the financial benefits flowing to renewable energy, making a statement of their unwillingness to sponsor Russian activity in the region.

A week later, Medvedev visited Crimea, and electricity was a central issue. Novak labeled the previous incident as an energy weapon wielded purposefully by Ukraine, arguing that a limitation of 300 MW was inadequate and that Ukraine should technically be able to provide all the necessary power with two remaining lines (Minenergo RF 2014 (2)).

Under the meeting, more information on both short- and long-term regional resilience measures were presented. On the short-term side, Novak informed about 1400 Diesel-generators that were placed in Crimea with a total capacity of 300 MW, supposedly enough to

[8] At this moment, Ukraine had very generous subsidies and feed-in-tariffs (mainly cost-based purchase prices) for renewable energy companies, trying to attract investments, but mainly benefitting the oligarch interests.

cover basic needs of vital infrastructure. Curiously, this number is a 50 % increase to the one mentioned by Temirgalijev. Another short-term solution was presented through planned installation of 14 mobile TPPs for an additional capacity of 300 MW. More long-term solutions that were brought up during the discussion consisted of building stationary TPPs fueled by a new gas-pipe or building of an energy bridge from Russian mainland (Ibid).

If correct, these measures combined with Peninsula's own electricity production should be more than adequate in case of emergencies and other unpredicted events. The solutions to electricity system were partly transferred to security of other energy systems, explicitly gas and coal. The diversification of fuel sources affects sectorality and growth of the normal energy chain, thus making it more versatile and complex. A solution of this sort is also favorable for Russia, knowing their vast resource base regarding oil and gas commodities.

Anyhow, the vital electricity system in the Peninsula appears less vulnerable and rather secure. Observations amount to evidence of Russias representative's action as something between politicization and securitization. Likely, the balancing behavior was adopted to gain more credibility for their own agenda and legitimize involvement in Donbass. In this process, Ukraine was framed as a radical actor and a threat, but no extraordinary measures were proposed.

The argument is somewhat nuanced by a slight increase of gas prices to Ukraine on the same day, which resembles economic weaponization of energy (TASS 2014 (4)). As already demonstrated, gas is less significant to the Ukrainian electricity system but vital for other uses, making it somewhat detached but significant. Another possible response was synchronized seizure of Activ Solar's assets due to a production stop caused by withdrawal of Ukrainian feed-in tariffs and benefits (Kommersant 2015 (3)).

After the growing gas dispute between the two countries, Ukraine chose to increase its resilience in gas by making trade agreement and reversing the flow from Poland as well as Slovakia (RT 2014 (1); Liga.net 2014 (2)). The step was also a way to prevent vulnerability from Russian pressure regarding gas prices. Further, on May 6th, G7 parties started to voice measures to *"face up to the use of energy as a weapon by Russia"* (Reuters 2014 (2)).

A possible reply came from Russia a week later, May 12th 2014, when the government ordered Ukraine to repay the debt of 3,5 billion USD and prepay for all gas deliveries, threatening to stop export to Ukraine in case of non-compliance (Gazprom 2014; Government

RF 2014). A peculiar incident took place that same day in Ivano-Frankivsk, Western Ukraine, when a gas pipeline from Urengoy to Uszgorod experienced intentional explosions (Censor 2014). This pipeline serves as one of the main transit routes within Ukraine and towards Europe. No-one was brought to justice for the crime, making it impossible to know who factually carried out the act. Ukrainian response was to place additional police and military forces on site.

The timing is rather conspicuous. For Russia, this would be an opportune incident to discredit Ukraine's stability and shame it in front of the West while maintaining their own reputation as a stable supplier. Alternatively, one could blame right-wing organizations such as Pravyy Sektor for staging the event (Stopfake.org 2014). This would be an example of utilization of energy infrastructure as a weapon by third parties within a conflict. By destroying transport routes, they could achieve putting pressure on Russian gas sales. However, Russian gas lines are easily redirected, whereas Ukraine as a transit state suffers from the incident. If one adds the notion of agreements with Poland and Slovakia, an attack on transportation system in western Ukraine seems deeply flawed and senseless.

The event went under the radar of many international observers as it did not cause mortalities and neither majorly affected the transit. Still, it resembles previous events where Ukraine is discredited while Russia sails up to be the sensible and reliable actor that promotes formal meetings, discussions, and negotiations to ensure their energy security. The incident passes both the "straw" and the "hoop"-test, but lacks a "smoking gun".

Three days after the explosion, May 15th 2014, Pravyy Sektor was indeed involved in an incident, now near Zaporizhska Nuclear plant. Numerous vehicles with armed men moved towards the facility. By their own account, the mission was to set up a blockade as a response to receival of information that mentioned an upcoming Russian-separatist revolt targeting the plant (Hromadske TV 2014). However, such a revolt was not detected by law-enforcers on site. Rather, the police forces seized the Pravyy Sektor activists for obstructions and extremism (RBC UA 2014). This event confirms the prospects of third party involvement. However, no shots were fired and the situation was handled relatively well by law-enforcing units. Some important questions remain unanswered, as how did Pravyy Sektor receive the information, and why did they choose to act. The evidence is incomplete, but points to a dangerous accident which could have escalated to a fatal level.

A more unlikely explanation would be that pro-Russian actors dissiminated the faulty information on which Pravyy Sektor acted. In this case, it worked out well, exposing Ukrainian discord and displaying Pravyy Sektor as an extreme and terrorist organization. The incident however, received little attention and was hushed down, possibly to avoid embarrassment and desecuritize the arisen situation.

The tension in the sphere of energy decreased slightly when Russia struck a deal with China on gas deliveries and Ukraine paid 786 million USD to Gazprom (Liga.net 2014 (2); The Guardian 2014).

5.2.1 Discussion of the evidence

Summing up the findings in this phase, the most striking discovery is the subtleness of the threats and the indeterminancy of factual causes concerning the incidents. Although, the timing raises suspicion. Each of the incidents could be linked to an ongoing disagreement in near period, giving the parties motivation to engage in weaponization of energy. The success of the weaponization is rather dubious and manages merely to highlight the interdependencies, resulting in a relentless tradeoff by the parties. Both physical and economical weapons can be noticed, with the former having most pronounced reactions.

March was largely characterized by both parties improving their resilience of the electricity system, whereas the subsequent months were less prominent in this regard. Both parties rhetorics were rather balanced, eventually developing into accusations of being targeted by the adversary's energy weapons. Ukraine is accused in the sense of electricity, while Russia in the sense of gas. Therefore, the evidence points to a slight shift from a balanced behavior and politicization towards a security jargon, legitimizing potential replies toward the adversary and creating acceptance for governmental policy. Seemingly, both Russia and Ukraine were using these incidents as a way to keep the public "rallied around the flag", but continuing business as usual.

The evidence is somewhat in line with the theory. This is seen by a slight transition toward energy securitization and struggles as interdependence is lessened. The latter was spurred by the parties trying to enhance their energy security through system resilience. Although, comparing the escalation of the conflict level and securitization in terms of military action, it is remarkable that no major incidents targeted electricity system and that it remained largely

unaffected. If one chooses to interpret the incidents as energy weapons, then the acts were limited in scope, through subtle threats and gentle pressure. This evidence goes contrary to the preliminary expectation of major weapons and their immediate success, but partly coincides with the characteristics in the hybrid mode of conflict.

5.3 June 2014 - January 2015: Fluctuating interdependence, more energy incidents

Start of June 2014 was marked by Ukrainian measures to cap high electricity consumption by increasing prices (Interfax UA 2014). Targeting demand of end-users, the resilience of the electricity system and the overall energy security could be increased. On the flipside, it countered threat severity posed by Russian weaponization of electricity system components. The departure from normality also reminds of securitization measures. For consumers, the intrusion could seem drastic and uncalled for.

Nonetheless, the prices for electricity were seen as artificially low, and has for a long time been debated as a way to balance Ukrainian economy. The tariff increase ranged from 10-40% based on a ladder principle, primarily targeting the individuals with high consumption (Ibid). Thus, the measure was a slight departure from normality, but not in the sense of existential rhetoric or severity which are more typical for securitization. Rather, it can be viewed as a shared perception of central actors which was politicized and acted up in time of unrest.

A more precaurious situation developed after the failed trilateral negotiations on gas prices in mid-June (CSIS 2017 (3); CSIS 2017 (4)). Simultaneously, the battle intensified in the east, culminating when a military plane was shot down in Lugansk, killing 49 people (CSIS 2017 (5)). On June 16th, 2014, Russia stopped supplying gas to Ukraine (CSIS 2017 (6)). This event marks a stark degradation of the relationship between countries making a clear example of disturbance in Ukrainian energy security. As previously mentioned, gas plays a lesser role in Ukrainian electricity system and the event was elaborated earlier by other scholars. Therefore, a thorough discussion of this event is avoided. Still, one could mention that such an incident passes the “straw”-test and a tight “hoop”, as Russian government both had a motive and willfully stopped the supply. Still, it lacks a “smoking gun”.

However, what is worth mentioning is an incident when a gas pipeline exploded in Poltava on June 17th (Korrespondent.net 2014 (1)). This incident was bypassed by many researchers, but was quite noticeable as it resulted in partial destruction of the already infamous Urengoy-Uzhgorod pipeline. Two main versions were presented by authoriries. One version is based on the technical neglect of the pipeline combined with a change in gas pressure coming from Russia, making it accidental in nature. However, the other version is somewhat more radical. Arsen Avakov, the Minister of Internal Affairs in Ukraine stated that the incident is regarded as a terrorist attack and *"…diversion by Russia to discredit Ukraine..."* (Korrespondent.net 2014 (2); CabMin 2014 (1)). His statement is substantiated by referencing Yatsenyuk's accounts on the matter (Ibid). Further, officials claimed that the reason for it was Russian wish to bypass Ukraine as transit and promote South Stream pipeline.

What is certainly interesting is the publicity of the statements and the tone taken by Ukrainian officials so rapidly after the incident. The rhetoric undoubtfully elevates the question of energy into the sphere of security and exceptionality, openly pointing to Russia as the source of disruption in the effort to gain public acceptance. The elevated rhetoric should be seen in the context of the creation of the "Staff on Energy in Crisis", meant to assure energy efficiency and balance the energy system (Translation from MPE 2014 (7)). Further, it was informed of a bill on State of Emergency in Ukraine to handle *"…the most difficult circumstances and their reasons"* (Ibid). This securitization and claims of energy weapon use may pass as "smoking guns".

Russia, on the other hand, denied the accusations and stuck to the first version of explanation, which was more in line with technicians assesment. Even so, it is reasonably suspicious, mirroring the incident one month earlier in Ivano-Frankivsk. As before, no-one was charged or brought to justice. The incident once again coincides with major disputes on gas, acting as a reason to diverge the gas flow to Europe away from Ukraine and discredit the Ukrainian state, just as Yatsenyuk himself concludes. This time on, one could also be reminded of the possible involvement of third parties, given the geographical location of the explosion and the previous statements by Pravyy Sektor's representative.

The incidents provide a myriad of observations and equivocal statements, which makes it somewhat difficult to analyse them. Yet, the latter incident can pass all three tests, providing at least partial evidence of an energy weapon used by Russia. The weapon size is at best intermediate, as gas was not severily affected. The timing of securitization in energy

overlapped with increased tension and the Russian buildup of troops on the Eastern border to Ukraine, strengthening the idea of energy weapon used together with military means, further supporting the logic behind hybrid warfare (CSIS 2017 (7)).

The End of June 2014 was marked by Ukranian proposal to import gas from Slovakia, and the signing of the Association agreement (RT 2014 (2); EU Council 2017 (1)). The proposal is perceived as a politicized move aimed at systemic resilience and de-escalation of the rising problems. The proposal may also be perceived as a preparation to deal with new issues and reaction coming from Russia after the signing of the Agreement. Nevertheless, the conflict level was slightly reduced in the end of June as the four-way talks started in Normandy.

July 2014 did not figure with any incidents when it comes to electricity, possibly due holidays and weather conditions that curbed electricy needs. However, armed conflict in the East continued, with a number of airstrikes causing deadly outcomes, culminating in the downing of MH-17, a passenger plane travelling from Netherlands over Ukrainian airspace (CSIS 2017 (8); EU Council 2017 (2); The Guardian 2016).

The development in energy that could be emphasized is the rapid fall in international oil and gas price, ultimately impacting Russian bargaining position vis-à-vis Ukraine on gas export. Simultaneously, Ukraine continued an energy dialogue with the European Union to diversify its energy sources, especially gas (MPE 2014 (8)).

During August 2014, massive battles erupted in Eastern Ukraine, growing in intensity and casualties (CSIS 2017 (9)). August 29th, Ukrainian president Poroshenko even cancelled his planned meeting with Turkey due to the conflict escalation in Donbass (CSIS 2017 (10)).

A somewhat similar, but less precarious development took place in terms of electricity. In start of the month, Russian Federation presented a Federal Program on Crimea, introducing long-term resilience measures targeting Peninsulas energy needs (Minenergo RF 2015).

On August 13th, Ukraine was forced to introduce “Temporary Emergency Measures in the Electricity Market” because of the standstill in around half of the national coal mines and depletion of reserves (MPE 2014 (9); see also *Figure 5*). The measures placed responsibilities on the different public bodies, simultaneosly giving them additional degrees of freedom. An important aspect was the authorization to apply extraordinary means to handle third parties that disrupt the electricity system functions. This act may be seen as a securitization to attract attention and legitimize unpopular measures that may target the audience as well as state

adversaries. On the flipside, it neither elevates the issue to the level of 'existential importance' and does not grant any sweeping permissions to the public bodies compared to the business as usual.

The measures can be explained by the need to increase the incomes and place more control in hands of the governmental institutions to utilize energy in their interest. The restraint in the extent og the measures, can be explained by several factors. One is the ongoing discussion on energy market integration with EU and the nedd to keep up appearences. The other is the vast corruption in the energy sector and the wish to contain it at an 'acceptable' degree. Third could be keeping the civic community calm and avoid excessive public unrest. The measures were followed by enhancing resilience of the electricity system by making a deal on coal import from Republic of South Africa and reversing gas flow from Slovakia (MPE 2014 (10); Liga.net 2014 (2)). Moreover, the government launched an information campaign promoting "Ukrainian energy independence" (Ukinterenergo 2014 (1)).

In the last days of August 2014 Ukraine reduced electricity transmission to Crimea (TASS 2014 (5)). However, formal limits to electricity consumption did not enter into effect before September 3rd (Ukrinterenergo 2014 (2)). The slashes were explained by the disruptive activity targeting coal infrastructure in Donbass and electricity system prioritizing citizens of mainland Ukraine. Nonetheless, the slashes came in a time when the two sides were discussing the first ceasefire agreement in Minsk. For Ukraine, the slashes could therefore be introduced in lieu of separatist aggression and as a response to the Russian gas halt, whilst pressuring Russia in the ceasefire negotiations.

The slashes were rather major, limiting the transmission to Peninsula to 300 MW in the mornings, 500 MW during the day and 600 MW at night (Ibid). Given the initial transmission of around 1000 MW, one could perceive the disrupt as severe, both for the industry and everyday life of Crimeans. On the other hand, given the Russian government assurance of a large capacity of mobile generators, the limits should not have caused major complications in the short term. Additionally, the Ukrainian side announced the limit caps publicly, giving some time for Russian authorities to prepare for difficulties this limit caused. Overall, the size of the potential weapon is limited by both parties, placing it on the 'intermediate' part of the size-scale.

Again, the measures and securitization language are somewhat balanced. First, the rhetoric reiterates vitality of the electricity system for Ukrainian citizens and blame terrorists in

Donbass. Still, Ukraine abstained from halting the transmission to Crimea completely, limiting what could be the most viable energy weapon in it's relations with Russia.

Two days later the parties signed the first ceasefire Agreement, Minsk I. Thus, Ukraine had a motive and consciously disrupted the energy system of Crimea, passing two "hoops" and several "straw"-tests. Possibly, the demonstration of energy interdependence and weaponization produced results in terms of deescalating the conflict. In this situation, the weapon was used as a reply to deteriorating 'bond', against military means, and to pressure an opponent to negotitate.

However, this short-term effect is limited by several other events. Already 10th September Gazprom turned down the supply of gas to EU countries, forcing Poland to stop reverse gas transit to Ukraine (Liga.net 2014 (2)). Two weeks later, also Hungary halted the gas reverse to Ukraine, suspiciously after a visit from Gazproms CEO, Alexei Miller (Ibid). The pattern of suspicious timing continues, making it reasonable to posit that an energy weapon was applied as a retaliatory move to destabilize Ukraine.

Motive for Russia could be twofold. One was the wish to compel Ukraine to a gas deal and repayment of debt. Another reason was to put pressure on Ukraine to pass the law on Free Economic Zone with Crimea (Arzinger 2014). Hence, it is plausible to assume that the ceasefire agreement created a window of opportunity for energy exploitation and to continue pressuring Ukraine into concessions. In this case, the weapon bore fruits as the parties signed an interim gas agreement in Berlin and the law on Free Economic Zone was passed (Varfolomeyev 2014). These events somewhat reduced the adversaries' energy security, but strengthened the 'bond' between them.

The next day, 28th September, the battle for Donetsk Airport erupted, turning the attention away from energy in the discourse of public officials. The renewed intensification of military activity and the continuance of emergency measures in the field of electricity led to Ukraine halting electricity export to Belarus (MPE 2014 (11)). The move was explained by officials by the difficult situation facing Ukrainian electricity system. However, this move can have political implications as Belarus remains a close ally with the Russian Federation. Thus, Ukraine effectively demonstrated that electricity issues for Ukraine spill over to other states of Russian interest. The export however, did not have severe consequences, as Belarussian grid is not highly dependent on Ukraine, only importing electricity for system stabilization.

A more visible and significant incident occurred th 9th of October, when Ukraine prolonged the emergency regulations on electricity, further tightening supplies to Crimea (MPE 2014, (7)). This move came in a time when gas agreement was being negotiated and the coal production was hindered by renewed fighting in Donbass. Additionally, Ukrainian actorate simultaneously filed a suit against Russia for illegal property seizure of Chornomornaftogaz (PGOU 2014). Moreover, Ukraine was about to hold parliamentary elections 26th October.

This is a continuance of a pattern where issues in Ukrainian electricity spill over on Russian interests and reinforced in time of unrest and dawning political decisions. The move can counter aggression and decelerate Russian activity through demonstration of energy interdependence and sustained influence. The size of the move is still constrained, expressed by a refrainment from a complete shutdown of electricity flow to Crimea. If this was in fact an energy weapon, it was rather limited in scope and somewhat retaliatory by nature. The pattern of actions by Ukrainian government merely resembles defensive realist thinking.

The relationship in term of energy cooperation improved the same month, with Ukraine making a deal with Russia to import 500 000 tons of coal and striking a deal on gas provisions (Pravda UA 2014 (1); BBC 2014 (2)). Thus, Ukrainian reliance on Russia as a supplier of energy sources was segmented and increased, completely opposite to the wish of independence uttered by politicians. This progression credits liberal logic and interdependence as a constraining factor in use of energy as a weapon. Nonetheless, the energy deals did not seem to have any impact on the conflict in Donbass during the period. If anything, the conflict slightly intensified, evidenced by statements from separatist leader of Donbass and OSCE Special Monitoring Mission (Al Jazeera 2014; OSCE 2014 (1)).

An even more interesting observation came from a statement in Arseniy Yatsenyuk's speech on 5th November, where he presented several major cuts in subsidies and pensions for regions held by separatists, but explicitly exluded electricity and gas from the scope of measures. The explanation was the importance of the energy sources for the residents in the area (CabMin 2014 (2)). By the rhetoric, energy is marked as being simply too vital to be targeted by financial austerity measures. In extension of this rhetoric, Ukraine refrained from using a potential economic energy weapon to target Separatist and Russian Forces in the area. Possibly, the continuance of electricity provision was necessary to retain a 'bond' between Ukraine, Donbass, and Russian electricity grid, maintaining the systemic interdependence. It is hard to distinquish the rhetoric as stricitly securitizing, placing it once again somewhere in between the sphere of crisis politics and security of the country.

A thought-provoking incident which caused disruption in the Ukrainian electricity system was internal prosecution of energy minister Yuriy Prodan, director of Ukrinterenergo Vladimir Zinevich, and Yuriy Golovachev of "Centrenergo". The charges against them were rised on a suspicion of misappropriation of governmental finances after the coal deal with South Africa (Fakty 2014 (1); Pravda UA 2014 (1)). Supposedly, the coal was of substandard quality and ill-suited for electricity generation, making its price artificially high. Knowing the extent of corrupted deals in the sphere of energy, the suspicion gives an impression of trustworthiness and appropriateness. Golovachev was fired by the board of directors in Centrenergo already 6th of November 2014. Opposingly, a former journalist, anti-corruption official and a Ukrainian Member of Parliament (2014-) Tetiana Chornovol made a case of defence for the three officials, supported by an investigation of the involved actors (several oligarchs) for the prosecutions and charges against state officials, explained by personal economic motives (Chornovol 2014). Knowing some connections of oligarchs to Russian officials, this prosecution could be an interesting case to investigate in a separate study.

The result of the prosecution onset was a temporary halt in coal supplies from the South African company, grounded by their wish to maintain a reputation as a reliable actor and explained by the difficulties prompted by Ukrainian legal procedures (Fakty 2014 (2)). This turnout of events boosted a myriad of issues already present in the electricity system regarding supplies and generation. The loss of this supplier and a halt on the delivery was a blow both for the diversification attempts and the overall systemic security of Ukraine.

A related event on the 13th of November reinforces the pattern of disruption in electricity system of Ukraine. Yet another coal mine was targeted in Donbass and had to stop production. The mine was flooded and 6 workers had to be rescued (MPE 2014 (12)). The event was one culmination of several days intensification of armed conflict in the area, as observed by the OSCE (OSCE 2014 (2)). The greatest benefitter of the range of events was Russia, which is also a point emphasized by Chornovol (2014). The observations of the Russian military involvement in Donbass and timing of mine destruction point towards a pattern which fits previous observations. The attack on the mine is a clear trace of intentional disruption of electricity system infrastructure affecting energy security of Ukraine. The size of this potential weapon is limited.

Considering the supply disruptions, Ukraine stroke coal import deals with Russia and another South-African company (Centrenergo 2014 (1)). Supplies from American companies were discussed, but did not lead to any concrete arrangements (Centrenergo 2014 (2)). These deals

were supplemented by a decision on the 18th of November, allowing import of up to 1500 MW electricity from Russian Federation to secure end-users' and infrastructural needs. The deals were important to secure Ukrainian electricity provision and system operation, but created even more dependencies on Russia as the supplier, aggravating the possibility for electricity weaponization by the Federation.

The evidence does pass one "hoop" test. However, it is more dubious that the change of behavior was completely in line with Russian motives. If one interprets it that way, then the coal deals further tilted the scale of balance towards Russia.

Strikingly, Vadim Ulida, the deputy official who signed the electricity import permission was fired one week later for his decision (BBC UA 2014). Nonetheless, the permission was not reversed as the need for backup electricity remained. The fired officials might be perceived as scapegoats for making unpopular decisions, calming public disapproval on trade with Russia and used as the symbols of corruption eradication.

From 21st to 26th of November, Ukrainian officials complained that coal import from Russia was suspended indefinitely and for unknown reasons (Centrenergo 2014, (3); RBC RU 2014 (2)). The accusations very swiftly countered by Vladimir Jakunin from "Russian Railroads", who stated that there is no ban at all, only upper capacity limits on the railroad tracks, decelerating coal transport (RBC RU 2014 (3)). November 29th, 2014, Crimean 'Chornomornaftogaz' became 'Chernomorneftegaz' and nationalized as a Russian company operating under Russian jurisdicition, after a decree issued four days earlier.

Again, the timing of the transport hindrance is remarkable and raises suspicion. As the coal resources were securitized by Ukraine, it is rather questionable that export could be greatly delayed without it being noticed by Kremlin officials and other ranked officers. Then again, there could be actual capacity limits to transportation responsible for a delay, made visible by Ukrainian overreaction due to grave circumstances and growing impatience on the matter.

Brought together, the observations pass several "straws", the "hoop" of motive, and "smoking gun" of statements, exemplified by Ukrainian officials. However, the intentionality can be questioned. The findings provide some evidence for the energy weapon.

A strangehold on Ukrainian electricity system tightened even further when an accident on Zaporizhska NPP hindered one unit from transmitting produced energy. The explanation was a strictly technical one, concerning safeguarding measures and issues with transmission

components (SNRIU 2014 (2)). The accident exacerbated issues in electricity sector, causing Ukraine to start nation-wide 'rolling blackouts' and limit resource consumption (Fakty 2014 (3)).

Start of December was marked by a change in ministerial cabinet, with Volodymyr Demchyshyn taking over the post after Yuriy Prodan (MPE 2014 (13)). The tension was slightly eased after Russia received a 378 million USD prepayment for 1 bcm of gas and resumed deliveries (CSIS 2017 (11)). This marked a behavioral change by Ukraine. Timely, also coal started to enter Ukraine after the gas payment, somewhat strengthening the evidence that the coal halt was an energy weapon from Russian side (RT 2014 (3)).

Moreover, Russia presented plans for South Stream whereas Ukraine tried to diversify sources for electricity generation by negotiating with Austrialia and Kazakhstan (Pravda UA 2014 (2); Fakty 2014 (4)). An exception to Ukrainian tension ease was Chevrons cancellation of a massive deal on shale gas that could potentially increase Ukrainian self-sufficiency (Reuters 2014 (3)).

On 24th and 26th of December 2014, right before upcoming holidays, Ukraine slashed electricity transmissions to Crimea, blaming the Peninsula for exceeding it consumption limits in a time of power shortage and restrictions (Olearchyk 2014). The transmission stops were caused by documented intentional interruption and renewed the same day on both occasions, making the incidents some clearest traces of willful energy disruption. Subsequently, the observation passes one "narrow hoop" test from the initial evidence pool.

Neither were these incidents completely detached from securitizing rhetoric, with Deputy Energy Minister Oleksandr Svetelyk making several remarks regarding the pressing circumstances for Ukrainian electricity system and the need for extraordinary measures and resolve to maintain everyday functionality (MPE 2014 (14)). Presence of securitization may be a response to the struggles within electricity system and Russian pressures, making weaponization a reciprocal move on Ukrainian part.

The timing can also be telling, with energy negotiations taking place between Russia and Ukraine during the exact period and creating a motive for weaponization to receive concessions and discounts from Russia (MPE 2014 (15)). Only a couple of days after the slashes, Russian government agreed to sell 500 000 additional tons of coal and export electricity to Ukraine at interior prices (MPE 2014 (16); Reuters 2014 (4)). The change in behavior and previous position starkly resembles a successful application of an energy

weapon, making it coincide with evidence expectations and provides a strong case of treating the incident as an example of an energy weapon that may just pass a “doubly decisive” test, as willful disruption led to behavioral change that is seemingly in line with the motive. Still, the energy weapon merely increased the ‘bond’ between parties, once again leading to a higher number of material systemic links and tipping the balance towards Russia.

However, the contract with Russia was not simple and purely concessional. One contractual exchange was seemingly an obligation to provide stable electricity transmission to Crimea as well as Donbass, and officially naming the territory as a part of Russian Federation. Such a move partially dimished Ukrainian energy weapon against Russia and gave flawed public statements. In the aftermath, the contract was later excessively scrutinized by Former Prime Minister Yatsenyuk, Ukrainian energy experts and media. (UKRLIFE.TV 2015; EIRCenter 2015 (1); Pravda UA 2015 (1); Pravda UA 2015 (2)). Nonetheless, the contract was defended by the energy ministry and continued to operate as a security for Ukrainian electricity system throughout an extended period (MPE 2015 (1)).

Summing up the last days of the year one should mention that Ukraine tried to diversify one of its most vital energy sources as it signed a new deal with Westinghouse to import nuclear fuel components until 2020.This move was loudly recented and shamed by Russian officials, voicing high possibility of accidents and technical failures (CSIS 2017 (12)).

5.3.1 Discussion of the evidence

The evidence in this second phase create an intricate image. If Russian energy weapons were actually applied in this case, their effect was increased Ukrainian dependence on the Federation and sharpened severity of the future weapon potential. Ukraine, on it’s part, was forced to adapt to the changing realities and reinstate order in the official structure during a coalition formation and other internal struggles. Simultaneously, the state had to reassure the public of its strength and capacity to handle an ongoing crisis.

The observations lead to a deduction that time extensive, rather frequent, but less disruptive energy incidents had caused severe damage to Ukrainian government in terms of destabilization and general uncertainty, which is one of the prime objectives in hybrid warfare. Events in November are clear examples in this regard. Ukraine tried to avoid securitization when appropriate but shame Russia when possible. Several unpredicted and somewhat random accidents disrupted the safety of electricity system, swelling the issues, and

thwarting governmental strategies. Ukraine can also be said to have applied its energy weapon, at least once, to ease tensions, but with ambiguous success. The country's dimished capacity and navigational space forced Ukraine to tolerate increased dependence and added concessions favoring Russia in exchange for energy system viability and maintain cooperation in the sphere of electricity.

Russian restriction in energy weaponization can be partly explained by the economic profits from the arrangements with Ukraine in time of declining oil & gas prices. Another part of the explanation is Russian wish to maintain an image of a stable partner in energy relations, reassuring both European and Asian costumers. A third part was probably to keep a low profile in terms of Western attention to the energy subjects. Indeed, when a tactic seemed functional in the longer term and appeared to give advantage, there was also no need to alter its logic. The Federation could merely observe Ukrainian difficulties at tackling the various issues posed by relatively modest Russian activity. One important part appeared to be the quick dispersion and inflation of negative information about Ukrainian disarray and incapacity. This information favored the Russian government and legimitized their actions on both the energy issues and overall international relations.

The general frequency of incidents increased as both parties tried to increase their energy security and "weaken the bond" of interdependence. Counting the traces of evidence, Ukraine has limited or cut electricity to Crimea 3 times in the period, 31.08, 09.10, and 24.12. The latest incident provided evidence for an energy weapon.

The traces of Russian activity are more difficult to identify, but two incidents provide enough evidence to be counted as energy weapons, one being the 17.06 and the second being actions from 21.11 to approximately 26.11. Several other incidents were identified, but failed to pass the necessary tests. One reason could be concealment and dispersion of energy weapons. To understand why, one should be reminded of the great arsenal of energy weapon potential on Russian side and the electricity supply to Crimea as the main instrument fo Ukraine. Therefore, the slashes in Crimea could be more visible due to their concentration, whereas the myriad of lesser Russian weaponization is more prone to pass under the reseacher's radar. This discussion indicates that the meshes of the "net" used in the data collection might be to coarse to catch the necessary nuances, making it an important reflection for further studies.

5.4 January - September 2015: Increasing security but maintaining the 'bond'

In mid-January 2015, the battles in Eastern Ukraine intensified, and the long-term fighting ground of Donetsk Airport was seized by separatist forces, forcing Ukrainian government to reply with military strengthening and activity (CSIS 2017 (13)). Moreover, the city of Mariupol became a place for violence as the conflict escalated, causing mass fatalities and condemnation by public authorities (CSIS 2017 (14)).

The same escalation could not be observed in terms of electricity. In late January, several newspapers informed about a concluding work on diesel-generators in Crimea following the December slashes in electricity. The sources inform that the generators that were already placed in the Peninsula late March 2014 are not yet installed in Crimea, since autorities lacked finances to do so (Crimea.RIA 2015 (3)). Anyway, Russian government signaled an increase in electricity system resilience, once again introducing measures aimed at reducing the size of Ukrainian energy weapon and curbing its usage.

The restraint on energy weaponization is noticeable and needs to be investigated. First, the escalation of the armed conflict already attracted international attention, escalating to a point where United States considered military assistance to Ukraine (CSIS 2017 (15)). An application of an energy weapon by Russia could have been the tipping point in such a decision. Also, the contracts signed in December turned out to be quite functional for both parties, as they ensured some stability in otherwise turmoiled relationship. Finally, both parties were making some steps to diversify and reinforce their resilience to tackle future issues. On the other hand, the timing would be right as the adversaries were having meeting and negotiating the Second Minsk Agreement, which was eventually signed on February 12th (CSIS 2017 (16)).

Nonetheless, the armed conflict continued for some time after the ceasefire agreement, and a railroad hub, the city of Debaltseve, was captured by separatists on February 18th. The town is strategically located between Luhansk and Donetsk, allowing an improved flow of resources and personell between cities (The Guardian 2015 (1)). The loss of this town is another example of hampered Ukrainian control with the coal flowing from Donbass. The loss of this strategic position resembles the familiar pressure by Russia in terms of coal access and incremental weakening of the Ukrainian electricity system. The electricity system of Ukraine

becomes deeply entangled within the military sphere, making it even harder to distinguish and explicate as energy weaponization. Still, the move follows a pattern, adding saliency to the perceived hybrid warfare.

Being pressured once more, Ukrainian retaliation might be viewed as economical weaponization of electricity. The day Ukrainian forces retreated from Debaltseve, Yatsenyuk declared that Ukraine will refrain to pay for electricity from Donbass, until the government can establish its origin and financial benefitors (Fakty 2015 (1)). The move is somewhat self-harming and costly, given the state's internal struggle in electricity system and deals on Russian provision of electricity and coal to Ukraine. However, it is passes a tight "hoop" of intentionality and several "straw"-tests.

About one week later, Ukraine prolonged the state of emergency on the electricity market and introduced a new set of austerity measures. The measures targeted electricity prices to decrease consumption and consequentially the vulnerability of the system (NatCom 2015). The two states also managed to negotiate a prolongation of a gas deal, which ensured stable flow for one month, and probably eased the terms on energy trade with separatist areas. These negotiations themselves were a valid motive for previous weaponization by both states, with a seemingly positive outcome, making it partly successful and evidencing of something more than mere precautions.

As sanctions continued, energy prices fell, and a Russian critic Boris Nemtsov was assassinated, the Russian maneuverability was slightly reduced. This coincides rather well with a period of relative stability during the next month, both in term of energy weaponization and armed conflict. Ukraine, on the other hand received an IMF package that eased Russian stranglehold on its energy issues and economy. Moreover, Ukraine started to push back in gas negotiations, threatening to stop gas import until a better deal could be made (MPE 2015 (2)).

Parties agreed on a new gas deal already on the 1th of April. It is entirely plausible that the threat of gas disruption was weaponized by Ukraine to pressure Russia in negotiations, but stops short in having more pronounced effect in other areas. The weapon is therefore very limited and does not directly affect the electricity system. Nonetheless, knowing the fallout, it might also be regarded a success, matching some expectations.

During this period, the attention of Ukrainian government generally turned inwards, exemplified by sacking and arrestations of several high-ranking officials on accusation of

corruption in the energy sector and other areas (BBC 2015 (2); Fakty 2015 (2)). Supposedly, the domestic corruption and the oligarchs' ties to Russia were a main concern, which in this context should be viewed as national preventive measures to increase long-term energy security throughout the whole energy chain.

One remarkable coincidence is the seizure of Poroshenko's assets in Crimea as the prosecution against Naftogaz(UA) administrators unfolded in Ukraine (RFE/RL 2015 (1)). Consecutively, one should also be reminded that Naftogaz has vast ties to the already mentioned oligarch Dmytro Firtash. The coincidence could be random overlapping, making the events less memorable. On the other hand, it fits the initial expectations, suggesting that the rivals were trying to decrease their vulnerabilities on energy, with observation of retaliatory moves as a result.

In the end of April, Russia once again gently tightened the grip on Ukraine, stating that the latter owed payment for gas to Donbass and urged for financial retribution (CSIS 2017 (17)).

For Russia, April was characterized by resilience measures in electricity. One example is the orders by Crimean Prime-minister Sergej Aksenov to oversee and expediate the construction of the energy bridge from mainland Russia (CabMin Crimea 2015). Moreover, Russia was looking to advance Eastern relations and develop Russian regions in that direction, consequently diversifying its energy demands and enhancing long-term economical prospects (Kremlin 2015 (1); Kremlin 2015 (2)). China was also chosen to provide technical assistance in construction of the energy bridge through the Kerch strait, with Russia transferring an advance in late April (Fedpress 2015; Minenergo RF 2015). These relation-building activities continued in May, when Chinese Leader Xi Jinping met Vladimir Putin after anniversary celebrations of WWII-ending to discuss extended cooperation and interaction (Kremlin 2015 (3)). A concrete result of a closer relationship was the major two-week military drill in the Black Sea and Mediterranean starting on 11th of May (RT 2015 (1)).

Moreover, Turkey was a focus area for Russia in this period. One important event was Turkish construction start of its first nuclear power plant April 14th, built by RosAtom and aided by Russian expertise (Daily Sabah 2015). Another milestone was intensified dialogue and negotiations regarding construction of Turkish Stream (Gazprom 2015). Anyhow, the relationship between the two countries was rather strained. A part of explanation to why might be attributed to Crimean Tatars, with their largest diaspora and considerable influence

in Turkey. In early April, Lenur Islyamov held an interview talking about the restrictions put on him and his Crimean news-channel ATR by Russian authorities (OpenRussia 2015). As revealed earlier, this refusion was only one of several moves to curb Crimean Tatar voices and disobedience after the Annexation. Hence, an unofficial monitoring group was sent to Crimea from Turkey in late April 2015 to document possible violations. In June 2015, a report from the mission was delivered to Putin in a personal handover by Erdogan (Klymenko 2015 (2)). Accordingly, one should be aware that these events could set the stage for what would come later.

Summing up, the factors contributed to a couple of months with general armistice in terms of energy weapons, with only lesser and perhaps more covert weaponization. Killing of Nemtsov, the conflict in Syria, the pending Iran Deal, and other international affairs required more consideration, turning the attention away from Ukraine. Timely, NATO and EU announced measures to Counter Russian "hybrid warfare", partly disarming Russian arsenal and hindering their maneuverability to apply energy weapons without repercussions (CSIS 2017 (18)). In turn, this gave Ukraine some space and legitimacy in applying their energy weapons to counter aggression and push forth their own agenda.

In late May-early June, the fighting in Donbass flared up, leading to emergency talks between Hollande, Merkel and Putin to end the violence and honor Minsk II agreement (Kremlin 2015 (4)). Anyhow, the fighting in Donbass continued throughout the summer. At the time, no evident energy weapons were observed. The most noteworthy events were four technical failures on the Ukrainian NPPs from mid May to midJune (SNRIU 2015 (1); SNRIU 2015 (2); SNRIU 2015 (3); SNRIU 2015 (4)). The uncertainty regarding the cause of component failure should probably be attributed to frailty of the facilities and predicted safety issues.

In June, the Russian and Turkish dialogue on energy continued, but with less success than previously. One reason could be the presentation of the monitoring group report. Another reason was possibly spurred by the hung government after Turkish elections and consequently a postponement of the Turkish Stream (RT 2015 (2)). The third reason could be diminishing cooperation in the Syrian crisis and the fight against ISIS.

Within Ukraine, the fight against corruption continued also in June, with Ukraine seizing industrial objects and properties owned by Dmytro Firtash, stemming largely from assets in the sphere of energy (Korrespondent.net 2015 (1)). International relations with Russia

worsened as gas negotiations came to a standsill and Russia stopped supplying gas to Ukraine July 1st, 2015 (CSIS 2017 (19)).

The same day, Ukraine increased electricity prices to Crimea (UNIAN 2015 (1)). Worth mentioning, the price increase did not follow the time schedule that was set up previously by Ukrainian government (NatCom 2015). One explanation could be a different algorithm by which the price increase operates due to December 2014-deal. Nonetheless, the timing and motive raises suspicion, as the price increase appears to weaponize electricity in light of difficult negotiations in an attempt to extract concessions. In part, this probable weaponization should be perceived as a move to recall the interdependence and retaliate the long-term degradation of energy reserves. Given the weapon's limited nature, the Russian counterpart was also partly obstructed from securitizing the issue.

In mid July 2015, Yatsenyuk signed a memorandum with a U.S. based company, formally declaring a wish to build a Liquified Natural Gas (LNG) terminal in Odessa. The move would increase resilience and diversify gas supplies, potentially reducing dependence on Russia and enhancing their position in ongoing negotiations (Korrespondent.net 2015 (2)). Curiously, this question is closely connected to the Turkish willingness to ship LNG through the Bosphorus Strait (Almeida 2015, Cohen 2015, 9). Even more peculiar was a concession given to Turkey by Russia in gas negotiations in late July, when the latter presented a sizeable discount without giving any clear reasons (Interfax RU 2015 (1)). Some days later, Turkey's Energy Minister stated that Turkey and Russia disagree on a number of issues (mainly Syria), but that the cooperation regarding Turkish Stream is ongoing and decoupled from politics (Sputnik News 2015 (1)). Simultaneously, a meeting between Erdogan and Putin was planned to November 2015 (Sputnik News 2015 (2)).

Indeed, Turkey became something of a middleman in this sphere of conflict, with a potential to enhance its position and promote the country's interests by exploiting the ongoing rivalry. In the first week of August, World Congress on Crimean Tatars was held in Ankara, Turkey. There, Crimean Tatars formulated a strategy on resistance for the worldwide diaspora, and President Erdogan himself met with Dzhemilev and Chubarov, the two most central people in the Crimean-Tatar coalition at the time (Ukraine Today 2015). It is difficult to identify what was actually discussed behind closed doors, but the presence of the president himself suggest matters of utmost importance and significance. One month later, on September 8th, Chubarov, Islyamov, and Dzhemilev announced the Crimean Blockade (ATR Channel 2015 (1)).

By late July and onwards, Ukraine became increasingly vulnerable in terms of electricity generation, resource reserves and investor relations on energy matters. Several blocks og NPPs were stopped due to maintenance, and the hot weather caused a massive consumption of coal, negatively affecting the reserves required for the winter period (MPE 2015 (3); MPE 2015 (4)). Governmental rhetoric was firm on the matter, but with a rather soft response to the growing problems.

Indeed, this rhetoric was resembling a security jargon, trying to nurture acceptability and legitimate extraordinary public policy, whilst avoiding "existential" talk, definite proclamation of the threat source and failing to produce extraordinary measures. The resilience measures that were presented imposed energy efficiency solutions and restructuring of the Burshtyn "Island" (Fakty 2015 (3); EnergyNews 2015). Such framing of the issue provided space for Ukrainian officials to give a necessary and hasty shock-treatment to the electricity system of the state, which could remind the observers of fallacies during post-Soviet economic overhaul. A preventive resolution to secure the electricity system was also presented, and involved engaging lawyers in order to defend and repatriate lost energy assets in Crimea (UNIAN 2015 (2)).

Throughpout the period, also Russia continued to build resilience, as Crimean government has finally claimed to have installed the long-promised mobile generators for emergency in the last weeks of July 2015 (Crimea.RIA 2015 (4)). Moreover, the Russian officials in Crimea prepared for emergencies by creating an 'operational' staff, yet refrained from attracting massive public attention for this securitization move (Crimea.RIA 2015 (5)). Besides, Putin himself paid a visit to Crimea in August, where he held a number of meetings with regional representatives, discussing development, reiterating Crimean status as Russian territory and emphasizing the necessity to be prepared for *"destabilization from external parties"* (RIA 2015 (1)). Within this discourse, the action and rhetoric by the President could be regarded as one of the most powerful securitization steps targeting several areas, including energy.

Preventive measures for Russian energy security were the fight against corrupt officials in Crimea, such as the CEO of Chernomorneftegaz, Sergej Bejm. The investigation parallels Ukrainian scuffles on the issue of corruption (TASS 2015 (1)). Overall, the moves match the general "frozen" state of the conflict at the time, and protract a line where Ukraine is presented as weak and ustable, reinforcing public perceptions of the current political system in Crimea as being "up to the task" to provide electricity and other commodities.

5.4.1 Discussion of the evidence

Summing up the period, one could mention the relative calmness in the electricity sphere and inward focus on energy by both states. In terms of the armed warfare, the conflict level remained tense and was rather volative. The hostilities increased to early March and declined slightly in April and May, most probably due to the Minsk II agreement. However, also during these months, a number of violations were observed. The fighting flared up in early June and continued during the summer months, with September 1st ceasefire as the foremost change in the status quo (CSIS 2017 (20)).

Very few incidents manage to pass several tests on energy weapon usage by Ukraine. However, economical threats would be the main formula applied by the state. The intensity of events is typically small to medium-sized. If any actually weaponization took place, it was retaliatory and used as a response to various Russian coerion. The weaponization seldom resulted in visible behavioral change. A more prominent observation was exploitation of the events to push forward unpopular reforms regarding the electricity system. Especially pronounced were the resolutions on system security and preparations to the winter season amid rough natural and technical circumstances.

For Russia, the international affairs at the time turned some attention away from Ukraine. The weaponization is still concealed and limited, with one exception being Russian halt in gas deliveries. However, this event is more tighly bound to the ongoing negotiations than a means in hybrid warfare and the conflict. The best example is the destruction of coal mines in Donbass, physically disturbing Ukrainian coal supplies and diminishing its security. The entanglement of armed warfare and the electricity system makes it difficult to establish the intentions and purpose of operations. Potential motive could be to weaken Ukrainian electricity system, making it more dependent on the Federation and destabilize the state. Thus, there could be other similar instances involving Russian forces and separatists which are not detected by the researcher. Anyhow, the example is aligned with hybrid warfare mechanisms such as ambiguity and haziness.

More commonly, Russia was observed to enhance its resilience in terms of energy demand by increasing cooperation and providing attention to their eastern partners, demonstrating that Ukraine and European market can be avoided. The moves represent a suttle tension and security resolutions as the red thread in this relationship. Furthermore, Russian state continued resilience work and emergency preparations in Crimea to handle a sudden disruption in the

vital electricity system. However, “the bond” between adversaries was not explicitly damaged.

The observations lead to a deduction that structural constraints and Ukrainian domestic hardship gave Russia some respite to work on other issues and resilience, while holding up the pressure on the issue of electricity. Creating an image of the evidence, the energy weapon so far appears to be more of a shock collar than a taser, creating an environment where disobedience is fairly unpleasant and cooperation appears to give an instant relief. Nevertheless, one should be reminded that a growing independence and resilience in the energy sphere is expected to spur more frequent and intensified electricity weaponization.

The most important finding might be the involvement of Turkey and partly Crimean Tatars as third actors with interests in energy system of Ukraine. Whereas Turkey wishes to extract consessions regarding Turkish Stream, gas and other bilateral relations, the Crimean Tatars wish for political representation, better terms, and legal rights as a minority in Crimea. The network between the two parties and their connections to the rival governments created an opening to get involved, complicating, and altering the energy relationship.

5.5 September - December 2015: Third party involvement and breaking ‘bonds’

As mentioned, the start of September saw an upsurge of Crimean Tatar activity, with their announcement of Crimean Blockade. This Blockade was initiated to increase international attention for their cause, primarily since Ukrainian government failed to do so. Demands were made against Russia to ease restrictions and release activists. Additionally, Crimean Tatars required that Ukrainian government to scrap the law that makes Crimea a “Free Economic Zone” (ATR Channel 2015 (1)). The Blockade was set to start on September 20th with escalating logic, starting with trade blockade and moving on to public transportation, energy, and food embargo if their demands are not met.

Meanwhile, Ukraine continued to work on its electricity system vulnerabilities and source diversification. One such example is bilateral discussions with Australia on nuclear fuel provision (MPE 2015 (5). Another is the trade agreement from 17th September to once again purchase anthracite coal from South Africa (Centrenergo 2015). Remarkably, also the dialogue on gas issues between Russia and Ukraine continued with encouraging results. Still,

Ukrainian officials had to be aware about the impending energy bridge and the eventual loss of the most potent energy weapon at their disposal. On the other hand, Ukrainian state was tied to the Russian electricity grid and coal supplies, creating a lock-in with tight 'bond' of interdependence, discouraging the use of energy as a weapon.

For Russia, the first weeks of September were more tumultuous. First, Turkey's interim government was still waiting for a written contract on the promised gas discount, thereby postponing Turkish Stream negotiations (Sputnik 2015 (3)). Dmitry Medvedev confirmed this delay (Sputnik 2015 (4)). Somewhat suspiciously, the Turkish representatives made their claims just days ahead of the Crimean Blockade (Crimea.RIA 2015 (6)). Secondly, EU prolonged sanctions on Russia till March 2016, maintaining the pressure and somewhat limiting Russian action-space (EU Council 2017 (1)). Moreover, OSCE (2015) presented their report about human rights abuse, shaming Russian government.

After the announcement of Blockade, Crimean authorities were quick to put the blame on Ukraine and expressed grim repercussions in case of an energy blockade. The observations fit the pattern from previous findings, with stong statements and loud shaming as the common denominator. Simultaneously, they claimed to have the situation under control, with enough emergency capacity to "avoid collapse" (Crimea.RIA 2015 (7)). Again, the discourse falls in between politicization and securitizaion, creating ambiguity and masking the exact reactions.

For Crimean Tatars, the timing was of the essence. The international community decreased attention to their current situation, although continuing to support their rights. The publishing of the OSCE report provided legitimization for their cause and actions. Thus, the struggle and opposition by Crimean Tatars was justified in human rights. Secondly, Crimean-Tatar leaders signaled awareness regarding the upcoming energy bridge, which constrained their threat credibility to a limited time-span. It is assumed that the Crimean Tatar leaders were well aware about their importance for Ukraine, as being the "key" to repatriation of Crimea. This knowledge and their minority status made them partly untouchable and immune to severe repercussions by either state.

For Ukraine, the Crimean Tatars activity, pressured Russian government to deliver concession on gas and other commodities, while limiting Russian retaliation. Dzhemilev and Chubarov claimed to have a running conversation with Ukrainian government, making this argument somewhat more reliable (ATR Channel 2015 (1)). Turkish support and ties with Erdogan

provide additional observations regarding Crimean Tatar loyalties and backing for their actions. Seemingly, the setting created a perfect funnel to incorporate three different interests, consisting of Crimean Tatar's, Turkish and Ukrainian.

A fourth party that one should not omit is the Pravyy Sektor[9]. The organization decided to support the Blockade, making them a joker and an incalculable actor in this scheme. The reason is their somewhat undirected mindset, set against both Russian and Ukrainian authorities (Pravyy Sektor 2017 (1)). Being aware of their more aggressive stance, it becomes plausible that the group would initiate more radical events during the Blockade to promote their own goals, thereby interfering with other actor's objectives (Pravyy Sektor 2017 (2)).

The Blockade began September 20th. At the time, Russian priority was probably the upcoming offensive in Syria, which naturally turned international attention away from the Crimean Blockade (The Guardian 2015 (2)). Meanwhile, the construction of the energy Bridge was expedited, and the Crimean authorities stated that municipalities are initiating training exercises to handle potential outages. A more long-term resilience measure consisted of debate on prospects for additional solar power in Crimea (Crimea. RIA 2015 (8)). During the conference on September 24th, Crimean officials raised doubt about the capabilities of Crimean Tatars to disrupt electricity transmission (Crimea.RIA 2015 (9)). Curiously, Russia seemed to refrain from securitizing the issue with such rhetoric, playing down the chances and outcomes of a possible 'blackout'.

On September 25th, the Russian Federation and Ukraine reached an agreement on the terms for gas deliveries until April 2016 (EC 2015). The timing is peculiar, suggesting that the pressure created by the Blockade with pending threats to the Crimean electricity supply coerced Russia to give in on some points, possibly hoping that a concession could lead to a deescalation and disassembling of the Blockade. Nonetheless, also a 'whip' could be noticed, with Russian forces advancing in Eastern Ukraine and threatening the relative calmness at the frontline (OSCE 2015 (2)).

Three days later, Russia announced their offensive in Syria, taking the sting away from tensions in Ukraine and Crimea. Albeit, the bombings in late September and early October increased the tension between Turkey and Russia, as the former part was provoked by

[9] More precisely, Pravyy Sektor and another paramilitant right-wing group called 'AZOV battalion' were supporting this Blockade, but for simplicity reasons only the former is mentioned.

unauthorized airspace violations and mass military intervention, leading to a formal statement on October 5th (BBC 2015 (3); Global News 2015). Reportedly, Turkey even threatened to cancel cooperation on NPPs and natural gas (Deutsche Welle 2015).

The next morning, October 6th, one 330kV OPL pylon that was transmitting electricity to Crimea received critical damage by explosive devices and had to be shut down for repairs (MPE 2015 (6)). Nobody was found guilty in the attack. The observation is categorized as evidence of deliberate, physical energy disruption. The severity of the incident is considerable, placing it on the 'intermediate' part of the size-scale.

Two other 330kV overhead power lines (OPLs) were already out of service for renovations purposes. Considering the incident, transmission on one of the lines was picked up two days after the episode. Ukrainian Energy Ministry claimed that they did not introduce any limits in consumption. This was partly confirmed by Crimean officials (Crimea.RIA 2015 (10)). Somewhat contradictory, the functioning 220kV line from Kahovka to Titan was the only line of electricity transmission for two days. The flow for such a line is around 200 MW, with a maximum capacity of approximately 300 MW. These numbers indicate a decrease of flow by more than half[10] for ca 55 hours (MPE 2015 (7)). Thus, Russia could exaggerate and securitize the situation publicly, but largely abstained from doing so.

On the cite of destruction, Tatar activists and Pravyy Sektor deliberately obstructed Ukrainian technicians and law-enforcers to perform their duties. The provisional emergency laws on the sphere of energy could be applied to forcefully prevent activist involvement, securing the OPL's from 3rd parties. Instead, the parties started a negotitation, which obstructed the repairs for four days. This soft Ukrainian reaction might be understood through Crimean Tatar "immunity".

For Ukraine, the disruption could serve several motives, passing the "hoop" test. First is postponing the local elections in Donbass, a wish expressed by President Poroshenko during the Normandy talks October 2-4th (Pravda UA 2015 (3)). Second is putting pressure on Russian government. Third could be Russian negative stance on restructuring of Ukrainian debt. On the other hand, Ukraine's interdependence with Russia in terms of electricity dictated caution and fear of retaliation. Moreover, the event risked ruining the concurrent

[10] From the agreed-upon 650 MW, which is already 200-400 MW less than the overall needs for the Peninsula, depending on the peak loads.

ceasefire. Although, Crimean Tatars and Pravyy Sektor could have played the role of scapegoats for the occasion, substiated by the fact that Ukraine abstained from using a tough approach on activists.

On afternoon the exact same day, separatists in Donbass chose to delay the condemned elections, changing previous behavior (CSIS 2017 (21)). The timing seems suspicious, but in line with the Normandy talks. A generous interpretation may pass as the secondary requirement (b) of the "doubly decisive test, but remains unclear in terms of the advarsaries involvement. Contrary, the restructuring of debt was refused by Russia on October 15th, which would be an observation of the weapon's failure (CSIS 2017 (22)).

From another point of view, the Turkish displease with the Syrian offensive could be a motive to engage Crimean Tatars and target Russian interests, demonstrating Turkish influence. However, it seems redundant considering the strict rhetorical responses taken the day before. Another motive might be Turkey's wish to increase its trade and exports to Crimea while obstructing local production by targeting the electricity system. Coincidentally, a delegation from a Turkish city visited Crimea to discuss collaboration on October 6th (RG 2015 (1)). In this sense, the success of the weaponization is unclear and the incident should be seen outside the frame of the conflict.

Third, the realization of Crimean Tatar threats and involvement of Pravyy Sektor are by itself decent indicators to explain the episode. Demonstration of Crimean Tatar capabilities to Russian authorities could be an appeal to honor their demands. However, neither concessions nor any response to demands towards Crimean Tatars were observed in a proximate frame of time. If anything, a central Crimean Tatar activist, Eskender Nebiev was sentenced to a two-year imprisonment on October the 10th[11] (RIA 2015 (2)).

For Pravyy Sektor, the disruption could be perceived as "killing two birds with one stone". First, Russian government suffers as Crimean electricity system is disrupted. Secondly, Ukrainian government and electricity is targeted for making 'unacceptable' deals with the enemy, a position which have been voiced many times over. The radical *modus operandi* attributed to Pravyy Sektor somewhat strengthen the likelihhod of their involvement.

[11] At the time, also his father, Bekir Nebiev, was wanted, accused in murders of medical personell. He was found dead in a forest October 7th.

Combining the myriad of observations do not allow for a clear-cut conclusion, but point to a whole complex of different interests, with Pravyy Sektor as the main suspect. The uncertainty resembles the previously observed pattern, where several actors are present, but no blame is established, dispersing, and veiling the intentions behind disruptions. The actor participation and motives make the evidence inconclusive, demanding more observations.

In the meantime, a Chinese ship arrived in Crimea, preparing to lay the underwater energy cables from Russian mainland (RBTH 2015). Physical deliveries of natural gas to Ukraine were restarted October 12th, coinciding with Ukrainian completion of repairs on the damaged OPL.

October 19th, a petition aimed at halting electricity to Crimea reached 25 000 signatories, forcing the president to formally consider it (RIA 2015 (3)). In the night from 19-20th October new set of explosions targeted the power lines. Three OPL pylons received severe physical damage. Although, the damage was not critical, maintaining uninterrupted provision of electricity to the Peninsula (MPE 2015 (8)). Right after the incident Ukrainian government assured that when Crimea pays for electricity, the flow will endure. Russian response was quick, shaming Ukrainian government for inaction (Crimea.RIA 2015 (11)). However, the main blame was put on Crimean Tatars and Pravyy Sektor.

The disruptive effect of the incident was large and was obviously intentional. The petition provided evidence that enough people had a motive and maybe even supported the disruption. Yet, October 20th both sides were amidst withdrawal of heavy artillery from their contact positions (CSIS 2017 (23)). It seems irrational that Ukraine would jeopardize this development, especially since the state was experiencing heavy losses on the battlefield.

A trace of securitization is observed through the statement of Russian MP Anatoly Aksakov, where he mentions full retaliation in case of electricity disruption (Crimea.RIA 2015 (12)). This statement could pass as a "smoking gun". However, other officials were more positive, saying that Ukrainian energy staff acted *"quickly and professionally"* (Crimea.RIA 2015 (13)). Russian energy minister Novak himself desecuritized the situation when he stated that Crimea has build up a large emergency capacity (Crimea.RIA 2015 (14)). However, he maintained a high politicization level and informed about *"special attention (…) to the uninterrupted energy supply"* (Ibid).

On other areas, the next week saw a deterioration of the relationship, with a mutual flight ban and an episode of intentional fire ignition at an artillery depot in Ukraine which resulted in several casualties (CSIS 2017 (24)). More generally, the tension in the East increased and the conflict flared up in the wake of this event.

Ukrainian Energy Minister stated a couple of days later in an interview that "*we are being used*", simultaneously labeling the incident a "*terrorist act*" which contradicts governmental interests and "*damage(s) governmental property"* (5 Kanal 2015). This might have been a great theatrical act by Demchyshyn to deny involvement. However, if one chooses to interpret his speech as trustworthy, it largely eliminates Ukrainian state as the wielder of energy weapon on this occasion. Moreover, it lowers the likelihood of Ukraine disrupting the transmission two weeks earlier. As one recalls, prior weaponization was conducted by technical reduction of the flow and continuos pressure, excused by maintenance and similar arrangement. Indeed, the timely "*renovation*" of two lines is more fitting, compared to the generally unsuccessfull explosions.

By partially eliminating Ukraine as the wielder of the weapon, one should turn attention to Turkey, Crimean Tatars and the Pravyy Sektor. Interestingly, Turkey had started a large export of goods to Crimea shortly after the initiation of Blockade, even despite international sanctions. Thus, Turkish suppliers were benefitting by Blockade's continuance and escalation, perhaps even aiding the initiators (RG 2015 (2)). The renewed collaboration even caught the interest of Ukrainian legislators, taking up the issue wish Turkish representatives. However, Mihail Sheret, the vise-president of Crimea denounced that *"Ukraine can't (drive a wedge) (...) in our relationship with Turkey"* (Crimea.RIA 2015 (15)).

The Turkish government's other motives could be a reply to the Russian-led attacks in Syria and the airspace violations. This argument is supported by the Turkish downing of a supposedly Russian drone violating Turkish airspace just some days earlier (Reuters 2015 (2)). Moreover, Syrian President Bashar Assad was visiting Russia on the day of the pylon attack, October 20th (Kremlin 2015 (5)). October 21st, a telephone conversation took place between Recep Tayyip Erdogan and Putin (Kremlin 2015 (6)).

The Crimean Tatars motives regarding the incident remains the same as before, still lacking any observable concessions by the Russian side. The most obvious consequences were the prosecution of Lenur Islyamov and seizure of his assets by Crimean authorities, and police

raids on the ATR premises (Crimea.RIA 2015 (16); Banki.ru 2015). For Pravyy Sektor as an impatient participant in the Blockade, the motive is still to target both governments and create havoc. One mentionable observation is the rotation in Pravyy Sektor's Blockade personell, occurring on 21st October (Pravyy Sektor 2015). The shift would have allowed the responsible persons to flee the area, evading police, and prosecution by authorities. The seemingly primitive and weak explosive devices used to target the electricity pylon can be attributed to both actors in the Blockade, strengthening the suspicions against them.

This incident is indeed an instance of an energy weapon being applied, with a high intended scope and intensity, thereby passing several "hoops" and "straw"-tests. However, it is less related to the main actors in the conflict. Rather, it can be attributed to subactors and third parties as a means to achieve certain political ends. In this case, only Turkey can be said to have benefitted from such an incident, strengthening Russian dependence on its goods ahead of high-level bilateral negotiations.

Anyhow, the interest from media was lost as a Russian plane travelling from Egypt was attacked by terrorists on October 31st. The subsequent weeks were characterized by Ukraine enhancing its resilience work, including deals with Czech Republic and Westinghouse (MPE 2015 (9)). A significant observation is Ukrainian import of electricity from Russia in a period from October 28th to November 13th (MPE 2015 (10)). During this period, no accidents on the transmission to Crimea or other energy matters were observed. The interdependence may therefore be a valid reason for Ukrainian authorities to supress the "energy blockade" urges whilst desecuritizing the situation and commiting to collaboration with Russia. On the other hand, the fighting in Donbass intensified.

Throughout this same period, Crimean Tatar leaders have consistenty pushed for a Ukrainian halt in electricity supplies to Crimea, primarily voiced by Chubarov, Dzhemilev and Islyamov (Censor.net 2015 (1); (2)). The calls provide even more observations supporting their involvement in previous incidents, although limiting the action to a verbal level. As time passed without Ukraine acting, the verbal calls aggravated to the level of direct threats.

However, the media attention Crimean Tatars wanted was not present. Some reasons were the media fatigue for covering the Blockade and the more pressing international events, such as terrorist attacks in France and Egypt, as well as the upcoming UN Climate Change Conference in Paris. Correspondingly, the G20 meeting held in Ankara November 15-16th

should be a part of the list. In this forum, Russia continued to pressure Ukraine to restructuring of its debt to the Federation, but avoided addressing other problematic aspects in the relationship.

As a part of the Summit, Putin and Erdogan held private conversations, where both Syria and Turkish Stream was discussed (Kremlin 2015 (7)). Seemingly, Turkey was displeased about the Russian attacks on the oil convoys and overall military engagement, with Erdogan asserting that the solution on Syria must come through diplomacy. Only two days after the Summit, Russian pinpoint strikes continued with intensified force (Ibid; MinDef RF 2015 (1)).

In the third week of November, also the Ukraine-Russia relationship deteriorated as Ukraine came closer with EU on the matter of food imports. Russian response was a trade ban on goods from Ukraine (RFE/RL 2015 (2)). Besides, the Ukrainian Energy Minister visited Istanbul from 18-20th November. On this Summit of Atlantic Council (a U.S-based think-tank) he discussed energy and economy, displaying a strong interest for closer integration with Europe (CabMin 2015). Moreover, Yatsenyuk denied the Russian debt restructuting offer on November 20th, providing a motive to apply the energy weapon for extracting consessions on the issue (CSIS 2017 (25)).

Simultaneously, the Crimean Tatar leaders tried to convince Ukraine to stop supplying electricity to the Peninsula, saying that *"we can (…) interrupt deliveries tomorrow (…) but wish that the government does it"* (ATR Channel 2015 (2)). On the morning of November 20th, the largest attack targeting electricity transmission to Crimea was a fact (MPE 2015 (11)). As previously, the damage was attributed to intentional damage by firearms and explosive devices. However, this time the criminals managed to critically damage two out of four OPLs, thereby drastically limiting the electricity transfer to Crimea. Due to the attack, Ukrainian electricty system had to rebalance itself and conduct an emergency shutdown on on Zaporizhska NPP, which could have led to fatal consequences. Several coal plants were restarted to stabilize the system. Also, several municipalities within Ukraine lost their electricity acces (Ibid). The next day, the two remaining lines were damaged, causing an almost complete 'blackout' in Crimea (CSIS 2017 (26)).

The disruption to Ukrainian electricity system within Ukraine and toward Crimea is remarkable. Demchyshyn stated that the Ministry *"activated all possible resources to restore*

supply", including work on a ruling allowing "*physical protection"* of the repairmen (MPE 2015 (12)). Yet, relatively few military forces were employed to secure the sites. It is odd that despite the previous attacks on these transmission lines, few measures were taken to prevent new incidents (ICTV 2015). Especially given the mentioned legislation allowing extensive preventive actions. In their defense, it would require vast resources to secure the lengthy transmission lines. Moreover, it could turn Crimean Tatar community against them, depriving Ukraine of their foremost "key" to Crimean repatriation.

Ukrainian position on the debt restructuring proposal is a potential cause for applying an energy weapon to pressure Russia and avoid repercussions. The intensification of conflict in Donbass provided another motive to apply energy weapon against military means. The energy weapon is then a reactive response to the economical and military pressures by Russia, using the only viable weapon at their disposal. However, the fear of repercussions in terms of coal access and military activity should have been enough to repel Ukraine from such actions.

Russia itself could have a motive to disrupt the electricity lines to push people away from Ukraine, discontinue payments and remove the only important energy weapon in Ukrainian possession (ICTV 2015). Although, such interpretation is rather incredible, given the Crimean electricity deficit and the inadequate power generating capacity.

Pravyy Sektor was motivated and had opportunity to conduct such an attack, undermining both Ukrainian and Russian governments. For Crimean Tatars, the attack is a culmination of their stance, very much in line with Dzhemilevs statement the day before. However, the Crimea Tatar representative Lenur Islyamov denied involvement of Blockade participants (Podrobnosi 2015). Knowing that the explosives partially failed to disrupt all the lines on the first try, the connection to Crimean Tatars and Pravyy Sektor as the primary executors become even more plausible. Moreover, Crimean Tatars hindered Ukrainian authoririte from accessing the site and conduct necessary work (Krym Realii 2015).

Furthermore, Chubarov stated in an interview that the Crimean internal power generation should be enough to supply the vital public needs, but that this power is designated for the major military forces in the area (ICTV 2015). During the same session, he recalled the "Night of Fire", a South-Tyrolean rebel attack in 1961 on 37 electricity pylons, which generated international attention and marked a turning point in the Tyrolean liberation movement (ICTV 2015). This statement supports the involvement of Crimean Tatars.

In the aftermath, the contract on electricity supply to Crimea (2014) was brought back up on the agenda by Arseniy Yatsenyuk and Crimean Tatar leaders (NewsOne 2015). The electricity contract was reviewed as a corrupt deal that must be stopped, becoming a central issue after the incident, reviving a discussion around oligarchs and pro-Russian tycoons. Nevertheless, Ukrainian security forces managed to regain control of the pylons and the area after several days. Thus, it seems that at least a part of the Ukrainian government united their interests with Crimean Tatars, signaling understanding regarding minority group's impatience and elevating their struggle to the international level. One should also mention that the actual people responsible for the attack remain formally undiscovered as of May 2017. The observations are clear evidence of large, intentional disruption of the electricity system, passing both "hoops" and many "straw"-tests.

A prank telephone conversation was published online by "Lexus", claiming to have unveiled the Crimean Tatar Leaders and Enver Kutia[12] as the responsible persona (Vovan222prank 2015). On the tape, one can also overhear that Turkey is providing uniforms and material for Crimean Tatars. However, the supposed participants later denied the tape's authenticity.

The growing Turkish discontent with Russian action could be another significant theme guiding the hands of Crimean Tatars. In this case, the point would be to punish Russia for their engagement in Syria and turning the attention towards Ukraine. Moreover, it could enhance Turkish trade with the Peninsula and provide leverage in the negotiations on Turkish Stream.

Russian reactions were manifold. First, the Crimean government declared state of emergency to handle the situation. This approach clearly resembles securitization. One resolution was to force non-working days to save electricity (ABC News 2015). Another resolution was to utilize the mobile generation capacity. Third resolution was to deny large public gatherings in central cities. The argument of securitization is supported further by Putin's statement, where he claims that the Ukrainian government had to give consent to this attack (RBC RU 2015; Kremlin 2015 (8)). This evidence may pass as "smoking-guns", which combined appear to build enough evidence to see the incident as application of the energy weapon.

In media, Crimean Tatars were regarded terrorist and extensively blamed. Further, Russia mobilized military forces on the Crimean border with Ukraine during the 23rd and 24th

[12] Crimean Tatar fighting in Donbass.

November, as reported by Ukrainian National Security Defense Council (Mediarnbo 2015). This last resolution can be seen as a preventive measure against energy weaponization. On 24th November, the Crimean Energy Minister was fired from his position (KP 2015 (1)). The ceasefire violations in Donbass multiplied, later leading to Ukraine closing its airspace for Russia (OSCE 2015 (3)).

One response in terms of energy was a Russian ban on selling anthracite coal to Ukraine and increasing the already tense situation for the winter period (Epravda 2015; Interfax UA 2015). Gas trade between Russia and Ukraine also came to a halt (ATR Channel 2015 (3)). Another measure taken by Russian authorities was a physical transportation of two gas drilling platforms from Odessa gas field to Russian territorial waters. The first platform was moved November 24th, guarded by Russian warships. During its movement, a Turkish vessel was accused of interference (Crimea.RIA 2015 (17)).

These observations combined with the case-specific knowledge provides sequential evidence of the energy weapons as reciprocatory, corresponding with energy securitization, and increased frequency of energy incidents. The retaliation appears to be spurred by growing unbalance and weaker 'bond'.

Another interesting observation is intensification of the pinpoint attacks against oil and petrol objects in Syria immediately after the first attack on electricity pylons (MinDef RF 2015 (2)). Eventually, this exact offensive spurred the shootdown of a Russian Su-24 plane by Turkey on November 24th, moving the main international attention away from Ukraine and Crimea. After the downing, the Turkish Stream was once again postponed.

In under two weeks after the attacks, December 2nd, Russia managed to launch the first string of the energy bridge and enabling a transfer of 200 MW (Government RF 2015). The launch is perceived as a resilience measure against the energy weapon. On December 8th, the smallest OPL once again started to supply Crimea. The decision was reached after discussion with Crimean Tatars, most probably to decrease the tense situation that developed between the two states (MPE 2015 (13); Fakty 2015 (4)). Maybe not surprisingly, Putin ordered to restart the flow of coal into Ukraine December 9th (Interfax RU 2015 (2)). December 15th, the second string of the energy bridge was launched, relieving the burden on the Crimean electricity system and facilitating full exploitation of the renewable capacity on the Peninsula (KP 2015 (2)).

In the aftermath of the 'blackout', the Deputy Energy Minister of Ukraine applied for release, possibly for unsatisfactory handling of the situation November 20th in the absense of Demchyshyn (EIRCenter 2015 (2)). Further, The Free Economic Zone with Crimea was abandonded December 16th, effectively halting the trade with the Peninsula (ATR Channel 2015 (4)). Russia quickly replied by the same coin, banning Ukrainian products.

Another important agreement was signed between NATO and Ukraine, establishing military cooperation (CSIS 2017 (27)). At the same time, Chubarov and Dzhemilev paid a visit to Konya, meeting with Turkish Foreign Minister and Erdogan himself (QHA 2015 (1)). Besides, Dzhemilev accused Russia for completing a restoration of a nuclear base in Crimea and placing weapons on site, which hampers repatriation (UNIAN 2015 (3)). He also sketched out a possibility for a naval blockade, extending Crimean Tatar action.

Almost exactly one month after the attack on the electricity pylons, West-Ukrainian electricity distribution infrastructure experienced an outage stemming from a malware. Several grids were intentionally targeted, resulting in around 200 000 people in Ivano-Frankivsk losing electricity for a shorter period (E-ISAC 2016). The NATO-agreement also provides Russia with a motive, passing both "hoops".

In the energy sphere, the cyber attack presented a novel form of weaponization, which was generally invisible until the Stuxnet virus attack on Iranian nuclear facilites. The size of the weapon is large in absolute terms, but 'intermediate' relative to the overall Ukrainian electricity system. Still, its potential to target other regions represented a huge concern.

The cyberattack was blamed on Russia by several reports. Investigators partly confirmed the theory due to the vast resources needed to conduct such an attack. The observations itself provide trace evidence, while the published reports count as reliable account evidence. The incident of willful energy disruption combined with confirming statements by more than one (state) actor may barely pass the "doubly decisive" test.

The outage can be regarded both as a response to the pylon explosions and as an energy weapon by its own logic. A reason for weaponization would be to demonstrate Russian capabilities and deterring actors in Ukraine from changing the conflict picture, principally pressuring them to subjugation. Further, the event could be fueled by Russian energy securitization and application of extraordinary measures. All these counter-measures and an upsurge in energy weaponization is line with theory, where diversification and broken 'bonds'

of interdependence boost Russian aggression and application of tools to destabilize and coerce Ukraine.

The incidents continued until the New Years Eve. The last major incident was an attack against the only functional OPL (220 kV) transmitting electricity from Ukraine (MPE 2015 (14)). The incident took place right before the upcoming holidays, complicating the festivities for many citizens. A motive behind this incident was plausibly to pressure Russia in the negotiations on a new electricity contract. The main issue in this contract was a clause labeling Crimea a part of Ukraine, which the Russian government perceived as a deal-breaker. However, the reply could also be spurred by the hacker attack, being retaliatory by nature. Nonetheless, both "hoops" seem to be passed.

The day after transmission disruption, Crimean Blockade was largely undone, leaving the customs officials to oversee the trade embargo (Korrespondent.net 2015 (3)). Thus, Crimean Tatars had a motive to attack the pylon, destabilizing the Peninsula and triggering electricity halt as their final move and demonstrating steadfastness, although once again failing to obtain any concessions. In such instance, the utilization of energy as a weapon should be regarded in generally negative terms.

Ukrainian officials claimed to be independent from Russian gas, and raised gas transit prices on the last day of the year (QHA 2015 (2)). The move should be understood in view of previous weaponization and deteriorating situation, with Ukraine enhancing the economical pressure on Russia to extract concessions on gas import. However, this Ukrainian position could also be a way to reestablish the 'bond' based on electricity transmission to Crimea, by altering the balance of interdependence on gas import and transit.

As a response to electricity disruption, Putin ordered a survey on December 31th, asking whether the citizens of Crimea would accept hardship in exchange for broken links with Ukraine (Crimea.RIA 2015 (18)). The poll is another example of energy securitization moves, with public acceptability legitimitizing implementation of unpopular decisions. The results of the poll were reported to be overwhelmingly positive, with people willing to suffer electricity shortages. Therefore, no electricity contract was signed. Ultimately, it is the ordinary people of Crimea that suffered.

5.6 Discussion and main findings

Overall, the analysis has provided a substantial amount of evidence. Both countries had the capacity to utilize energy as a means, with Russia having a bigger arsenal at its disposal. However, a configuration of structural constraints inhibited extensive energy warfare by Russia. The most prominent inhibitor seemed to stem from energy interdependence between the two states. The argument is largely based on electricity system operation, which consisted of mutual reliance and parallel function. Throughout most of the period, Crimea was dependent on Ukrainian electricity, whereas Ukraine was dependent on coal from Donbass and Russian nuclear components. Power transmission to Crimea was a powerful tool in this regard, since the electricity supplied both the Crimean people and the Russian military on the Peninsula.

Another significant structural constraint was the declining price trend of gas and oil products, further restraining Russian action space. Third inhibitor was international attention and economic sanctions placed on Russia. Fourth, related inhibitor could be Russian geoeconomic considerations, where large gains from energy relations with the state of Ukraine promoted market logic and secured demand for Russian commodities. The fifth category of inhibitors that might have been important is the large international events requiring Russian involvement, such as the Iran Deal, the conflict in Syria and others. The sixth inhibitor was the Russian caution to act in a way that could ignite a full-blown international conflict. Somewhat related, could be the general reluctance to weaponize nuclear power and its components, conceivably in fear of causing a humanitarian catastrophe.

Nevertheless, utilization of energy as a means in conflict was supported by evidence on at least five occasions during the period where: 3(+) are by Russia, 1(+) by Ukraine, and 1(+) by third actors.

These incidents could usually be connected to important negotiatons or events taking place between the adversaries. However, the motives and executing actors have been generally concealed and the incidents obscured. The disruptive effect has generally ranged from low to medium in scope, allowing the adversary to regain control in a relatively short period of time. The number and size of events is somewhat contradictory to the initial expectations, but make sense considering the utilization of energy through a lens of hybrid warfare and its underlying logic. The high frequency and small size also appear to be in line with the idea of energy as a

shock-collar rather than a taser, with incidents on November 20-22nd being the main exception.

The nature of the disruption and threats was usually physical, with gas relations as a possible exception. The transport and transmission appeared as the most common points of disruption, possibly due to practical reasons and more rapid results. It was also noticed that the complexity of the electricity system made it nearly impossible to guard all the vital components within the energy chain without devoting huge resources for their defense.

Russian actions were largely aiming at discrediting Ukraine, tipping the balance of interdependence toward the Federation and punishing Ukrainian cooperation with the West. Russia's arsenal made it possible to pressure Ukraine from different angles and destabilize the state without revealing involvement. For Ukraine, the weaponization is more easily comprehended, with electricity to Crimea being the main "weapon". Although, the variation of the electricity transmission to Crimea was principally applied in a time when the state was already severely pressured and weakened, either on electricity or in the armed conflict.

The internal incongruities and divergent personal interests within Ukrainian parliament exacerbated the issues on energy security resolutions. One such example was the prosecution of the deal on South African coal supply. Other examples were brought up to the surface through discussion of likely corruption and oligarchical bonds to Russian elite. Third issue was the attempts of Ukrainian government to integrate with the European Union, which placed structural restrictions on Ukrainian maneuverability by demanding adaptation and compliance with the European energy policies.

Involvement of third parties and sub-actors turned out to be a significant complication in the assessment of energy as a weapon. Oligarchs, Pravyy Sektor, Crimean Tatars and even Turkey had motives to interfere in the electricity system. From the evidence, one could claim that the groups also managed to do so. Still, the actual interests remain largely hidden, especially for the case of Crimean Tatars. One explanation of Crimean Tatar action is their own agenda. Another explanation could be their role as a scapegoat for Ukrainian government. Third explanation relies on their ties to Turkey. The truth in this case is perhaps somewhere in between and remains to be exposed by further research.

Anyhow, the evidence of their involvement is a noteworthy discovery. The extent of energy system seemed to make it more likely for third parties to weaponize energy, thereby

interfering in the conflict. This possibility places obligations on the state to maintain a certain degree of physical control with the system. Even more important, a state should set up a running dialogue with other parties to establish boundaries and produce a shared understanding of the situation.

When it comes to securitizaion and discourse, the main findings were the general inclination to shame the adversary. This was aimed mostly at internal audience, but also the adversary's international partners. Securitization could be based on thin accusations and usually to strengthen one's own position. Although, the adversaries typically refrained from large securitizing moves manifesting in exceptional measures. The securitization seems to be limited to rhetorical claims and security jargon. The temperance seems to come from the general interdependence on one another, and the veiled form of energy weapon use.

When Ukraine securitized energy, it was often done to legitimize price increase and facilitate other unpopular reforms. In addition, it was done to attract Western assistance and financial support. Somewhat similarly, Russia securitized to legitimize continued interference in Ukraine, demonstrate the adversary state's instability to the international community, unite the people of conflict areas, and portrait Russia as a victim.

Regarding internal affairs, the thesis has shown several times how policy elites, members of the parliament and the government affected the energy discourse (Nance and Boettcher 2017, 5). Their acts had profound effects, exemplified by prosecutions after a coal deal in 2014. The context seemed to incorporate many vested interests and personal gains by political elites, making them a substantial factor of influence. Therefore, further research would benefit from mapping out the internal interests and the political connections of parliament members to the matter of energy. This applies both generally and particularly to Ukraine.

Interestingly, and especially considering the finding that securitization moves seldom went as far as to present extraordinary measure to handle the threat, the evidence suggests presence of retaliatory moves. The evidence is therefore in line with the expectation that energy weapons have a "backfire trigger" making them appear "pairwise" throughout the conflict.

The success of the energy weapon was limited. When applied by the states, its success was limited, but present. Although, the discussion from previous paragraph informs of high price for success. However, when energy was weaponized by non-state actors such as Crimean

Tatars, the consequences appear as slightly negative for the wielder, even when the size of a weapon was considered major.

Due to interdependence and structural inhibitors, the best option for use of the energy weapon by Russian government appeared to be a diffusion of its arsenal, pressuring, and destabilizing the adversary over time. With some support from internal struggle within Ukraine, Russian leadership was achieving this objective. The energy weapon was also used more actively to punish the Ukrainian cooperation with western countries, giving a small "shock" or "jolt" each time Russia was pushed away and Ukraine tried altering the interdependence balance.

During the period of the study, Russia largely managed to retain Ukrainian demand and dependence on Russian electricity system components, even despite the resilience measures by the latter. Several times, Ukrainian electricity system had to increase its dependence on Russia, which contradicted the governmental requests and affected Ukrainian behavior. Thus, weaponization conducted by Russian government can be generally regarded as a partial success in the short-term.

When energy became linked with other issues and actors, the situation quickly spiraled out of control, resulting in a 'blackout'. Thus, the 'bond' between adversaries was maintained until this incident. When the 'bond' was broken, the frequency of energy incidents increased, with the hacker attack as the most prominent weapon. Escalation was felt both in terms of retaliatory energy weaponization and military encounters.

Another connection to hybrid warfare came with coal mines as the target of major separatist offensives, establishing another source of Russian pressure to balance Crimean electricity dependence. Several examples could be mentioned where coal mines were physically attacked as the countries sat around a negotiation table. A third connection to hybrid warfare is the rapid distribution by Russian media about energy incidents in Ukraine. The smaller events were quickly conflated to major international threats, depicting Ukraine in a negative fashion. This finding implies that for Russia, size of actual incidents could be less important compared to the incident depiction.

In sum, one of the most important findings of this study was that interdependence created a ground for weaponization, but also a foundation for mutual restraint and credible retaliation. The analysis suggests that even quite unbalanced energy dependencies could restrict actors from using their energy weapons and limiting their size when a 'bond' of interdependence is

present. However, a moderately balanced and symmetrical interdependency is preferable, since it creates a solid platform of cooperation, which potentially limits the level of conflict. Thus, the finding is very much in line with proposition made by Jonsson and colleagues (2015, 50).

To answer the research questions more precisely, the 'blackout' can indeed be labeled as an instance of an 'energy weapon'. However, it was most probably utilized by non-state actors, providing an alternative coating to the event. The 'blackout' itself was conducted through physical disruptions on four powerlines. The energy weapon was probably used to destabilize Russian authorities in Crimea, extract some concessions for Crimean Tatars and attract attention to their cause. However, the effect was broken interdependence 'bonds' between the state adversaries, more energy incidents, retaliatory energy weaponization and increased conflict level. The event probably occurred due increased Crimean Tatar mobilization and the impending completion of the 'energy bridge' from Crimea to Russian mainland. Turkish involvement and interests may have played a role as well.

Further, the analysis identified at least four other incidents that could pass the tests of causal inference. However, only a couple of incidents provided "doubly-decisive" evidence. The findings helped to address the main questions, contributing with empirical evidence to answer *how and under what conditions* might the states utilize energy as a means. The three features of interdependence, that is material links, balance and 'bonds' seem essential and partly in line with liberal theory. Ironically, the weapons appear to be used by adversaries to punish eachother and reinforce/reinstance cooperation. Only the 'blackout' can be said to be have large disruptive effect. All other instances represent lesser disruption that manifested in time of disagreements and discord. Thus, the identified energy weapon appears to be "shock collar" rather than a "taser". *Table 7* outlines the findings.

Conditions and the ways in which energy was used as a means in conflict:
Material interdependence: High number of material systemic links, coinciding with more energy incidents
Material balance of interdependence: Quite unbalanced, clearly favoring one state actor.
Interdependence 'bond': Quite strong throughout the period. Fluctuating and broken 'bonds' corresponded with an increase in energy incidents and energy weapon use.
Energy security: Volatile for both countries, with decreasing trend.
Mode of conflict: Hybrid warfare was associated with higher frequency of incidents, decreased size of disruptions and continuous pressure over time. Military activity sometimes interacted and spurred energy incidents.
Securitization: Mostly security jargon aimed at internal audience. However, securitization of energy could be related to the wielding of energy weapons.
Internal affairs: High level of corruption in the sphere of energy. Many vested interests and ties to energy. Oligarchs and policy elites as influential players
International affairs: More pressing and urgent international events created attention cycles for Russia. Economic considerations. Search for increased cooperation in energy with other parties causing fluctuation in interdependence.
The nuclear taboo: Reluctance to weaponize nuclear energy, but shaming by Russia.
The weather factor: Sporadically significant. Usually providing pressure and decreased security when 'abnormal', but could also be relieving.
Disruption Type*:* Mostly physical disruption.
Size: Mainly 'Small' to 'Intermediate'. Couple of instances with 'Large' energy weapons.
Number & period: Singular over time for Ukraine. Generally dispersed in number and extended in period for Russia. However, can quickly escalate in both size and frequency.
Trajectory*:* Ukraine: mainly electricity transmission to Crimea. (Gas transit from 12/2015?). Russia: Gas pipe transit. Hacker attack on Ukrainian grid. Coal supply from Donbass.
Success*:* For state actors, Yes, but costly and limited. For third actors, unclear, probably No.
Retaliation/Backfire: General retaliation, Yes. Associated with increase in energy incidents.
Alone or Against/With military means: Unclear. Maybe 'with/alone' for Russia and 'alone/against' for Ukraine.
Used When: Less material links, more unbalance in interdependence, reduction in 'bond'. Tense relations. During negotiations. ***Used To****:* Reinstate and solidify cooperation. Punish the adversary.

Table 7: Presentations of the findings. Prepared by the author.

5.6.1 Practical implications

The study proposes several lessons for policy makers. One such proposition was already mentioned, highlighting the need to create a dialogue that incorporates different parties on each side of the conflict. Another suggestion is to add a credible level of preventive security to the most vulnerable points within an energy system.

Securitization of energy can be understood as a significant factor that permits military intervention and furthers conflict intensification. If the grounds for energy securitization appear false, poorly documented, or initiated deliberately by some actors, there is a good reason to take a step back. On such occasions, it becomes even more important to question the language, conduct reviews, and initiate public hearings to make an informed decision, ultimately steering the discourse and action in way that facilitates conflict resolution.

The third measure urges to provide transparent, precise, and easily confirmable information by public bodies. This measure decreases both the feasibility of internal corruption and the false information flow, factors which could potentially escalate the conflict. Moreover, the openness would make it easier for the states to grasp one another's intentions and avoid dangerous misinterpretations.

Another important measure is to install a base amount of renewable capacity and decentralize generation. The measure would secure the resilience of a system against adversaries, shifting the threat sources from intentional and political to natural and technical. However, the example with cyber attacks on Ukrainian grid shows that the weaponization assumes many shapes and sizes, which makes it a difficult subject to recognize and act upon.

Hence, the most universal advice is increased awareness for this topic in future research and public policy. This study was a starting point to address the issue in a more accurate manner, merging a myriad of research in the process. Through such eclecticism, I believe that the scholars will achieve better understanding of the role energy plays in modern conflicts. In future research of the conflict, it could be interesting to study whether energy weapon use increased in scope and size through 2016 and 2017, given the growing energy diversification and independence between the adversaries. In future research of energy weaponization, other case studies are encouraged, enabling the scholars to build a better reference base, detect other configurations of structural constraints, and identify common cogwheels in the mechanism by which energy weaponization operates.

6 Conclusion

The purpose of this thesis was to seek out explanations regarding the role of energy as a tool in conflicts. The study analysed numerous energy events within a context, searching for evidence that could answer some questions by providing valid and reliable answers.

6.1 Methodological contribution

The study was conducted through process-tracing, aided by a mixture of appropriate scholarly contributions. Their research has been adjoined to generate a platform which facilitates the study of energy as a means in conflict. The platform in this thesis consisted of the contributions on energy security, energy weapon and energy securitization. The approach enabled to study the different perspectives of energy weaponization and its effect on the conflict level by studying actual events. The method of process-tracing combined with the platform made this case study more comprehensive, addressing the issue in a systematic manner. During the analysis, this combination helped to structure the observations and provide answers.

I believe that this combination could be a useful tool in improving our understanding and contribute to a more nuanced and productive study of the issue. Thus, this thesis tries to achieve something that Nance and Boettcher (2017, 5) so nicely spell out, namely "*overcoming the obstacles to deeper conversations about these issues, (…) potentially leading to better research and better policy on problems that affect us all in profound ways"*.

6.2 Empirical contribution

In this case study, energy was used as a weapon on several occasions, evidenced by observation and circumstances. Both countries were applying energy as a means in conflict. However, the interdependence of energy systems restrained actors to some degree. By Russia, weaponization was conducted by continuous pressure on Ukraine's electricity system, growing as the latter sought closer cooperation with Europe and United States. Curiously, the weaponization by Russia typically resulted in even more Ukrainian dependence in the short term. By Ukraine, weaponization was typically conducted by varying the electricity supply to

Crimea, targeting both the government as well as the Russian military forces in the area. Furthermore, the Ukrainian weaponization was mostly retaliatory, reacting to a worsened state of affairs and used as a trump card in tough negotiations. The initial expectation of large energy weapons is partly disproven. The weaponization tended to be small to medium-sized, which could be a guide for future studies, regardless of conflict mode.

The diversification and increased independence on energy issues was perceived as a factor that enhanced the size and frequency of energy weapons. This finding was in line with initial expectations and theoretical model. Other structural inhibitors were proposed as supporting features, many of which were case-specific and could not be translated into a broader representation.

The evidence also showed that weaponization attempts were often countered by the adversary, even though the replies could be steered through topics other than energy weapons. The initial assumption of retaliation and pairwise appearance was therefore strengthened. On this matter, the thesis supports Van de Graaf and Colgan's (2017, 59) statement on the limits to the energy weapon and its high cost.

The analysis confirmed that the 'blackout' was an energy weapon, but opposed the statements that Ukrainian government was responsible. The 'blackout' occurred due to physical disruption of all four transmission lines leading electricity to the Peninsula. The evidence showed that the 'blackout' was a result of increased involvement by non-state actors, threatening the status quo and the "normal" political approach to the issues of energy supply. The involvement of third parties spurred massive reactions and escalated the conflict level.

Securitization was moderately evident, with a rather balanced rhetoric from the state officials. However, media seemed to play a bigger role for Russia and legitimize their approach to the conflict. The success of energy weapons was only slight, but present. A daring claim could be that energy interdependence even helped to generally contain the military conflict and fighting in Donbass.

The complexity on the issues of electricity, the dubious evidence, veiled processes, and its presentation as internal affairs might have tired the international observers, leading scholars to assume a high level of cooperation and low level of struggles on the issue. However, this picture is made more complex and nuanced by the current findings. The paradox of no weaponization in energy and high degree of armed conflict may not be so paradoxal after all.

Death of civilians and military personell is rightly considered paramount and should still receive the largest share of attention. In this case, electricity incidents and lack of coal became secondary issues for media and many state officials. However, scholars and practitioners must pay attention to the energy systems within the frame of a conflict, especially since it can be decisive for the outcome. Neither should one overlook the political decisions and the effort to secure vital energy systems.

6.3 Theoretical contribution

The main theoretical contribution of this study was the identification of energy interdependence as both a disposition to weaponization, but also having some other features that can either constrain or facilitate conditions for the use of energy weapons. Even quite unbalanced interdependencies as in this case could deescalate the conflict and restrict adversaries from lashing out on each other when their 'bond', consisting of a vital, mutually beneficial relationship, is present. This claim supports the liberal view.

The evidence also pointed to the energy weapon as a source of gradual pressure and discipline, rather than a quick solution to achieve concessions. Similarly, the size of disruptions appears to be smaller than commonly presumed, being a "shock collar" rather than a "taser". The successfulness of energy weapons was limited and costly, since the weapons commonly triggered retaliatory responses. The findings coincide with the hypothesized characteristics regarding the mode of conflict. Nonetheless, they should not be neglected, but incorporated, questioned, or contested in further research.

In terms of energy securitization, the actors mainly targeted internal audiences to legitimize unpopular reforms, policies, and other conducts of the government. However, the extraordinary measures were seldom presented, limiting securitization to a security jargon that kept people 'rallied around the flag'. Especially for Russia, the securitization was mainly rhetorical, aimed at discrediting Ukraine as a partner for Europe and presenting the political direction of Ukraine as a threat for peaceful relations.

A complicating causal factor can be the presence of third parties and non-state actors. When these parties, or "allies" interfere in the conflict and energy relations, the conflict might quickly spiral out of control, causing massive retaliation and deteriorated relations. An interesting remark is that non-state actors do not face the same restrictions as states when they

misappropriate energy system links and exploit it as a means. The remark implies that non-state actors have a lot to gain by using energy weapons offensively since they can only be punished in other forms of reprisals. However, states are responsible for provision of energy services to the citizens and ought to act more carefully.

In addition, the study identified several case-specific inhibitors and important conditions for utilization of energy as a weapon. In this case, internal interests and corruption appear to have played a major role in restricting energy moves and unified approach by Ukraine as an actor.

To sum up, decisions regarding actions, reactions and discourse related to energy is linked to the conflict in several ways, contributing to either deleterious outcomes or conflict resolutions. To avoid the former fallout, this study urged for careful thinking, cautious planning, inclusion of experts, and balanced rhetoric in conflict situations, even in the face of what appears to be a major energy weapon. More research and increased awareness of the topic was proposed.

Both in terms of interdependence and securitization, a moderated and balanced approach appears to be the wisest move. A quote by Democritus sums it up well, when saying: "*Throw moderation to the winds, and the greatest pleasures bring the greatest pains"*.

Tying the lessons together, one could claim that energy weapon may indeed be an important issue within international conflicts and relations. To facilitate peace and deescalate conflict, this topic should be better understood by both researchers and policy makers. Further studies of energy as weapon should continue to incorporate interdependence, energy security, actor involvement and rhetoric as indispensable features.

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