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Article



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## International Legal Regulation of the Protection of Energy Facilities during Armed Conflicts

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**Abstract:** The recurring attacks on energy facilities during armed conflicts raise concerns about the effectiveness of their legal safeguards. The examples provided in the article of assaults on various types of energy infrastructure, including those employing modern means and methods of warfare, highlight the scale and multifaceted nature of this issue. The article identifies the norms of international humanitarian law (IHL) and other branches of international law that are applicable to the protection of energy facilities not only during armed, but also in peacetime. It also examines the rights and responsibilities of various actors under international legal standards in relation to these attacks.

The authors have identified gaps and issues in the legal regulation of the protection of energy facilities, as well as proposed legal positions for the improvement of these norms. Key issues identified include the

limited definition of “installations and structures containing dangerous forces,” as outlined in the 1977 Additional Protocols to the 1949 Geneva Conventions, the evolving nature of armed conflicts, the blurred lines between wartime and peacetime, the difficulties in applying the principle of distinction between civilian and military targets when planning and assessing attacks on energy facilities.

The authors have demonstrated the need to improve the international legal regulation of the protection of energy facilities and have outlined directions for the codification and progressive development of international legal norms. These proposals encompass the expansion of the term “installations and structures containing dangerous forces” as defined in the 1977 Additional Protocols, the establishment of a comprehensive definition of “energy facility” within a universal convention on international energy security, the creation of mechanisms to investigate assaults on energy facilities, and the enforcement of accountability for illegal actions directed at these facilities.

**Keywords:** energy facilities; attacks on energy facilities; protection of energy facilities; power plants; pipelines; international law; international humanitarian law; cyber operations; autonomous weapon systems; artificial intelligence

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## Contents

I. Introduction . . . . .	858
II. Applicable International Law . . . . .	865
II.1. Norms of International Humanitarian Law . . . . .	866
II.2. Norms of Other Branches of International Law . . . . .	871
III. Conclusion . . . . .	875
References . . . . .	878

## I. Introduction

Over the past century, energy infrastructure has frequently been subjected to attacks during armed conflicts, leading to significant repercussions such as the disruption of economic activities, the release

of toxic materials, environmental degradation, and risks to human life and health. The United Nations Security Council has repeatedly condemned attacks on oil facilities, pipelines, and other installations and emphasized the importance of their protection.<sup>1</sup>

In Russian research, scholars emphasize that states must ensure the physical security of energy resource extraction and transportation infrastructure, including cases of damage caused by armed conflict (Kotlyar, 2010; Savchuk and Kondratyev, 2011). Russian experts in international energy relations highlight the growing number of threats of terrorist attacks on energy infrastructure facilities, as well as the need to ensure the reliability and uninterrupted operation of fuel and energy sector enterprises to guarantee energy security (Zhiznin et al., 2020).

It should be noted that the terms “energy facility” or “energy object” are not defined in any universal international treaty. The term “energy facility” has a broad meaning, encompassing facilities for the production, transportation, and storage of various types of energy that play a crucial role in a State’s economy, security, and livelihood of its population (Park and Andrews 2004). Currently, there is no specific international treaty that comprehensively regulates the protection of all energy facilities, either generally or during armed conflicts. Instead, various international treaties contain provisions that address the protection and security of individual energy facilities.

In the realm of a comparative legal analysis, it is important to highlight that Russian legislation does not provide a definition for the term “energy facility” and lacks a cohesive legal framework for the protection of such facilities. This is largely due to the significant differences in the energy sectors where these facilities operate, the varying technological characteristics of energy facilities, and the specifics of their construction, operation, and protection. For example, Federal Law No. 256-FZ dated 21 July 2011, “On the Security of Fuel and Energy Complex Facilities,” applies to “fuel and energy complex facilities” that are defined as “facilities in the electric power industry,

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<sup>1</sup> United Nations Security Council Res. S/RES/2046 (2012), 2 May 2012, S/RES/2075 (2012), 16 November 2012, S/RES/2155 (2014), 27 May 2014, S/RES/2156 (2014), 29 May 2014, S/RES/2051 (2012), 12 June 2012, S/RES/2076 (2012), 20 November 2012.

oil extraction, oil refining, petrochemical, gas, coal, shale, and peat industries, as well as facilities for oil product supply, heat supply, and gas supply.”<sup>2</sup> The Federal Law No. 170-FZ dated 21 November 1995, “On the Use of Atomic Energy,” establishes special legal regulations for the protection of “atomic energy use facilities” that include nuclear installations, radiation sources, and storage sites for nuclear materials and radioactive substances.<sup>3</sup> Russian legal research emphasizes that the defining characteristic of fuel and energy complex facilities is their significance for the country’s economy and the security of livelihoods (Romanova et al., 2015, p. 99).

Political and legal assessments of attacks on energy facilities by states and international organizations vary. The consequences of such attacks also differ depending on the type of energy facilities, the specifics of the relevant energy sectors, their role within the energy sector, and the overall economy of the State where the facility is located, as well as the impact on states or regions whose interests are affected by the attack.

During the Iran-Iraq War (1980–1988), the oil industry facilities of both countries were subjected to regular bombings. The destruction of Iranian oil platforms by the United States became the subject of proceedings before the International Court of Justice (ICJ). Iran unsuccessfully attempted to prove that these actions violated the 1955 Treaty of Amity, Economic Relations, and Consular Rights between the two countries. The Court acknowledged that the destruction of the oil platforms might have adversely affected Iran’s oil exports and, in turn, the trade freedoms assured by the aforementioned treaty.<sup>4</sup>

In June 1981, Israeli fighter jets struck the Iraqi reactor Osirak, causing significant damage. The United Nations General Assembly condemned Israel’s actions, emphasizing that “the result of an armed

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<sup>2</sup> Federal Law adopted on 21 July 2011 No. 256-FZ “O bezopasnosti ob’yektov toplivno-energeticheskogo kompleksa” [On the Security of Fuel and Energy Complex Facilities]. Collection of Legislation of the Russian Federation.

<sup>3</sup> Federal Law adopted on 21 November 1995 No. 170-FZ “Ob ispol’zovanii atomnoy energii” [On the Use of Atomic Energy]. Collection of Legislation of the Russian Federation.

<sup>4</sup> International Court of Justice. 1996. Oil Platforms (Islamic Republic of Iran v. United States of America), Preliminary Objection, Judgment, I.C.J. Reports.

attack on a nuclear facility... would be serious radioactive consequences, which could also lead to the onset of radiological warfare.”<sup>5</sup>

In 1999, in the territory of the former Republic of Yugoslavia, NATO bombings destroyed oil refineries and chemical plants, leading to the release of toxic substances and the death and injury of civilians (Guskova, 2012, pp. 331–544). Russia condemned NATO’s aggressive actions, undertaken without the authorization of the UN Security Council, and initiated the adoption of a resolution demanding an end to the bombings. However, this initiative was supported by only three out of fifteen members of the Security Council (India, China, and Namibia).<sup>6</sup>

In 2006, Israel launched an attack on the power plant in Jiyeh, Lebanon. As a result of the bombing, heavy fuel oil spilled into the Mediterranean Sea, causing an environmental disaster (Henckaerts and Constantin, 2014). These actions were not subject to international legal assessment.

The consequences of attacks on energy facilities can extend beyond the immediate combat zone and persist even after hostilities have ended. For instance, in 2016, a fire ignited by the Islamic State (IS) at the Mishraq power plant in Iraq produced a toxic smoke plume that necessitated the hospitalization of thousands suffering from serious respiratory conditions.<sup>7</sup> Additionally, in the same year, IS ignited oil wells in Qayyarah,<sup>8</sup> Iraq, and launched attacks on a gas compressor station in Kirkuk, as well as an oil collection site, resulting in the destruction of a storage tank.<sup>9</sup>

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<sup>5</sup> United Nations General Assembly. Resolution A/RES/38/9. 10 November 1983.

<sup>6</sup> “My ne vprave zabyt’ etu tragediyu”: 21 god nazad nachalas’ agressiya NATO protiv Yugoslavii. *Balkanist*. Available at: <https://balkanist.ru/my-ne-vprave-zabyt-etu-tragediyu-21-god-nazad-nachalas-agressiya-nato-protiv-yugoslavii/> [Accessed 25.01.2025].

<sup>7</sup> UN Secretary-General. Report of the Secretary-General, S/2019/373. 7 May 2019.

<sup>8</sup> Otstupayushchiye terroristy podozhgli 19 neftnyykh skvazhin v rayone Mosula [Retreating terrorists set fire to 19 oil wells in the Mosul area]. Available at: <https://rg.ru/2016/11/07/otstupaiushchie-terroristy-podozhgli-19-neftnykh-skvazhin-v-rayone-mosula.html> [Accessed 25.01.2025].

<sup>9</sup> “Islamic State attacks two energy plants in north Iraq, kills five.” Available at: <https://ca.reuters.com/article/idCAKCN10B05F/> [Accessed 25.01.2025].

In 2019, unidentified individuals carried out an armed attack on oil refineries in Saudi Arabia using unmanned aerial vehicles (UAVs), resulting in a 50 % reduction in the country's oil production.<sup>10</sup> In Syria, terrorist groups have repeatedly attacked oil facilities, leading to oil spills and environmental pollution. In early 2020, militants targeted oil refineries and oil pumping stations, causing significant damage.<sup>11</sup>

In September 2022, the Nord Stream 1 and Nord Stream 2 gas pipelines were sabotaged. This major attack on energy infrastructure occurred during the Russia-Ukraine armed conflict (after the start of Russia's Special Military Operation on 24 February 2022), albeit outside the immediate theater of military operations – in the exclusive economic zones of Denmark and Sweden, northeast of the island of Bornholm. In addition to significant material damage, the explosions caused serious environmental consequences.<sup>12</sup> Despite the scale of the incident, no international investigation was conducted. A draft resolution submitted by Russia to the United Nations (UN) Security Council in 2023 calling for an international investigation was rejected. The Prosecutor General's Office of the Russian Federation initiated a criminal case in connection with an act of international terrorism. The Investigative Department of the Russian Federal Security Service (FSB) opened a criminal case under Part 1 Art. 361 of the Russian Criminal Code.<sup>13</sup> However, in Switzerland, where the pipeline operator company is registered, the

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<sup>10</sup> Exclusive: U.S. probe of Saudi oil attack shows it came from north – report. Available at: <https://www.reuters.com/article/us-saudi-aramco-attacks-iran-exclusive/exclusive-u-s-probe-of-saudi-oil-attack-shows-it-came-from-north-report-idUSKBN1YN299/> [Accessed 25.01.2025].

<sup>11</sup> Siriya zayavila ob atake boyevikov na neftyanyye ob'yekty v portu Baniyas. Available at: <https://www.rbc.ru/rbcfreenews/5e2f2fa59a79476218f8c7a1> [Accessed 25.01.2025].

<sup>12</sup> Otvet ofitsial'nogo predstavatelya MID Rossii M.V. Zakharovoy na vopros MIA "Rossiya segodnya" v svyazi s dvukhletney godovshchinoy podryvov gazoprovodov "Severnnyy potok-1" i "Severnnyy potok-2" [Response of the official representative of the Russian Ministry of Foreign Affairs M.V. Zakharova to the question of the International Information Agency "Russia Today" in connection with the two-year anniversary of the explosions of the Nord Stream 1 and Nord Stream 2 gas pipelines]. Available at: [https://www.mid.ru/ru/foreign\\_policy/news/1972550/](https://www.mid.ru/ru/foreign_policy/news/1972550/) [Accessed 25.01.2025].

<sup>13</sup> GP initsiirovala delo o terrorizme posle povrezhdeniy na "Severnnykh potokakh" [The Prosecutor General's Office has opened a terrorism case following damage to the Nord Stream pipeline]. Available at: <https://ria.ru/20220928/potok-1820183210.html/> [Accessed 25.01.2025].

incident received no criminal legal assessment. The coastal states of Denmark and Sweden, in whose exclusive economic zones the explosions occurred, also declined to pursue criminal prosecution. Requests for legal assistance sent by the Prosecutor General's Office of the Russian Federation to the competent authorities of Germany, Denmark, Finland, Switzerland, and Sweden, in accordance with international obligations, were effectively ignored.

Since 2022, the Armed Forces of Ukraine (AFU) have conducted numerous armed attacks on the Kakhovka Hydroelectric Power Plant (HPP). In June 2023, an explosion caused its devastation, leading to a rise in the Dnieper River's water level by over 11 meters. This event resulted in the flooding of 40 settlements and infrastructure sites that housed hazardous chemicals that eventually entered the Black Sea. The incident inflicted significant harm on the land, agricultural activities in the area, and the ecosystem of the Dnieper River.<sup>14</sup>

The armed attacks on the Kakhovka Hydroelectric Power Plant (HPP) have jeopardized the safety of the Zaporizhzhia Nuclear Power Plant (NPP), which is technically interconnected with it. In this regard, the Director General of the International Atomic Energy Agency (IAEA) has outlined principles that, if followed by the parties to the armed conflict, would help prevent a nuclear disaster at the Zaporizhzhia NPP:

1. there should be no attacks from or on the plant;
2. the Zaporizhzhia NPP must not be used as a storage site for heavy weapons or as a base for military personnel;
3. the external power supply to the plant must not be put at risk;
4. all structures, systems, and components necessary for the safe and reliable operation of the Zaporizhzhia NPP must be protected from attacks or acts of sabotage.<sup>15</sup>

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<sup>14</sup> Eksperty obsuzhdayut resheniye ekologicheskikh problem Donbassa i Novo-Rossii [Experts discuss solutions to environmental problems in Donbass and NovoRossiya]. Available at: [https://www.mnr.gov.ru/press/news/eksperty\\_obsuzhdayut\\_reshenie\\_ekologicheskikh\\_problem\\_donbassa\\_i\\_novoRossii/?sphrase\\_id=958282/](https://www.mnr.gov.ru/press/news/eksperty_obsuzhdayut_reshenie_ekologicheskikh_problem_donbassa_i_novoRossii/?sphrase_id=958282/) [Accessed 25.01.2025].

<sup>15</sup> Glava MAGATE perechislil printsipy, kotoryye pozvolyat predotvratit' yadernuyu aviariyu na Zaporozhskoy AES [The head of the IAEA listed the principles that will help prevent a nuclear accident at the Zaporizhzhia NPP]. Available at: <https://news.un.org/ru/story/2023/05/1441497> [Accessed 25.01.2025].

Military operations are progressively transitioning into the realm of cyberspace, with assaults on energy infrastructure being carried out via computer networks. These cyberattacks have a direct impact on the security of energy systems. Nevertheless, the perpetrators of these attacks frequently remain unidentified. A prominent instance is the cyberattack that used the Stuxnet computer virus against the Iranian uranium enrichment facility in Natanz in 2007 (Belous, 2020, pp. 143–145), which represented a significant risk to nuclear safety.

In 2002, a cyberattack on Venezuela's principal oil enterprise, *Petróleos de Venezuela, Sociedad Anónima (PDVSA)*, led to a notable decline in the nation's oil output.<sup>16</sup> In 2015, energy infrastructure in Ukraine experienced a cyberattack that resulted in multiple regions suffering power outages.<sup>17</sup> In 2019, Venezuela's foremost hydroelectric facility, El Guri, was also targeted by a cyberattack, causing extensive power disruptions throughout the country.<sup>18</sup> Venezuelan officials indicated that the cyberattack might have been initiated from the United States; however, no formal declarations or confirmations were issued by other states concerning the incident.

In February 2020, in the United States, malicious software halted operations at a natural gas compression facility, as the emergency response plan did not account for cyber threats or include appropriate protective measures.<sup>19</sup> In May 2020, a series of cyberattacks targeted supervisory control and data acquisition (SCADA) systems at water treatment and supply facilities in Israel.<sup>20</sup>

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<sup>16</sup> The 2002 Oil Lockout: 10 Years Later. Available at: <https://venezuelanalysis.com/analysis/7527> [Accessed 25.01.2025].

<sup>17</sup> Eksperty: prichina dekabr'skogo blekauta v Kiyevе — khakerskaya ataka [Experts: The cause of the December blackout in Kyiv was a hacker attack]. Available at: <https://www.bbc.com/russian/news-38589448> [Accessed 25.01.2025].

<sup>18</sup> Vlasti Venesuely nazvali kiberataku prichinoy otklyucheniya sveta v strane [Venezuelan authorities blamed a cyberattack for the country's power outage]. Available at: <https://www.rbc.ru/rbcfreenews/5c994f5b9a79478c70f8413d> [Accessed 25.01.2025].

<sup>19</sup> Natural Gas Compressor Facility Shut Down After Ransomware Attack. Available at: <https://www.natlawreview.com/article/natural-gas-compressor-facility-shut-down-after-ransomware-attack> [Accessed 25.01.2025].

<sup>20</sup> Hackers Targeted ICS/SCADA Systems at Water Facilities, Israeli Government Warns. Available at: <https://securityaffairs.co/wordpress/102361/hacking/israeli-water-facilities-attacked.html> [Accessed 25.01.2025].

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## II. Applicable International Law

Under current international law, the construction, operation, and protection of specific energy facilities are regulated by norms from various branches of international law, including maritime, energy, nuclear (atomic), environmental, and humanitarian law.

As a general rule, the norms of international law that define the legal regime of energy facilities and regulate their protection can be divided into two categories based on applicability of the relevant international treaties and their period of validity: norms applicable in peacetime and norms applicable during armed conflicts, i.e., norms of international humanitarian law (hereinafter referred to as IHL).

However, a number of norms applicable in peacetime continue to operate during armed conflicts as well. Article 3 of the Draft Articles on the Effects of Armed Conflicts on International Treaties, prepared by the International Law Commission, states that “if it appears from the subject matter of the treaties that they are intended to continue in operation, in whole or in part, during armed conflict, the outbreak of an armed conflict does not *ipso facto* affect their operation.”<sup>21</sup> The International Law Commission also noted that the law applicable to armed conflicts is “clearly broader” and that “it is not sufficient to recognize international humanitarian law as *lex specialis*,” as “other branches of international law may also be applicable.”<sup>22</sup>

The list of international treaties formulated in the Draft Articles does not directly include treaties defining the status of energy facilities. However, the treaties mentioned in the list — such as those concerning the permanent regime or status of territories, international protection of human rights, environmental protection, international watercourses, aquifers, and related structures and facilities — may be applicable to energy facilities,<sup>23</sup> as well as in assessing the legal consequences of attacks on them.

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<sup>21</sup> International Law Commission. Draft Articles on the Effects of Armed Conflicts on International Treaties, 6 August 2008, UN Doc. A/63/10.

<sup>22</sup> Draft Articles on the Effects of Armed Conflicts on International Treaties.

<sup>23</sup> Draft Articles on the Effects of Armed Conflicts on International Treaties.

## II.1. Norms of International Humanitarian Law

It is essential to recognize the differences in the applicability of IHL norms based on the type of armed conflict, whether international or non-international. This differentiation is rooted in the conditions governing the application of IHL sources, particularly the 1949 Geneva Conventions and their 1977 Additional Protocols (AP).

Nevertheless, contemporary armed conflicts exhibit significant variations compared to those of the previous century. Classifying the nature of modern armed conflicts presents considerable challenges (Maleev and Glikman, 2008). These conflicts often have a hybrid character, involving various anti-government factions, including terrorist groups, that frequently receive support from foreign nations. The regulations for declaring war, as outlined in the 1907 Hague Convention (III) on the Opening of Hostilities, are no longer applicable.<sup>24</sup> The distinctions between war and peace are increasingly blurred, with active military operations taking place in urban areas, where civilians and civilian infrastructure are intentionally targeted.

The key issue in planning attacks on energy facilities and assessing the acts committed is determining the legal status of the energy facility and, accordingly, the legality of the attack against it. The principles of IHL are crucial in this context, having been consistently recognized in international judicial proceedings as customary norms of IHL.<sup>25</sup>

A fundamental aspect of this discussion is the need to maintain the principle of distinction between civilian and military objects, as only military objects are permissible targets (i.e., legitimate military objectives). In the context of armed conflicts, installations like power plants and oil storage facilities often serve dual purposes. Due to their essential function in supporting opposing military forces, they are frequently classified as legitimate military targets in contemporary warfare. As highlighted by E. David, the airstrikes on oil refineries

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<sup>24</sup> Hague Convention (III) Relative to the Opening of Hostilities. Signed 18 October 1907.

<sup>25</sup> International Court of Justice. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion. ICJ Reports 1986. International Criminal Tribunal for the former Yugoslavia. Prosecutor v. Kupreškić et al., Case No. IT-95-16, Judgment. Prosecutor v. Kordić & Čerkez, Case No. IT-95-14/2, Judgment.

in Iraq, Iran, and Kuwait did not elicit significant objections from states, as these facilities supplied fuel to rival armed forces. The only exceptions occurred in instances where such attacks led to considerable environmental damage (David, 2011, p. 312).

A further issue is the lack of a unified understanding of the scope, classifications, and formulations of the principles of international humanitarian law (IHL). There are varying positions among states, the stance of the International Committee of the Red Cross (ICRC),<sup>26</sup> and different doctrinal approaches on this matter. For example, the principle of proportionality and its content remain subjects of debate (David, 2011, pp. 835–836; Blishchenko, 1984, p. 89; Kotlyarov, 2013, pp. 57–58).

Within the framework of international treaties and sources of IHL, it is important to determine which general treaty norms apply to the protection of energy facilities and whether there are specific provisions that address their unique characteristics and the challenges arising from attacks on them in modern armed conflicts.

The 1907 Hague Convention on the Laws and Customs of War on Land along with other Hague Conventions and declarations do not contain specific provisions on the protection of energy facilities. However, these treaties remain highly significant as they establish the foundations of international legal regulation for modern armed conflicts (Glikman, 2018). For the protection of energy facilities, the Martens Clause<sup>27</sup> is applicable since attacks on energy facilities affect the rights of both the population and belligerents. Additionally, the Provisions on the Laws and Customs of War on Land enshrine the principle of

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<sup>26</sup> Osnovnye printsipy Mezhdunarodnogo dvizheniya Krasnogo kresta i Krasnogo polumesyatsa [Fundamental Principles of the International Red Cross and Red Crescent Movement]. Available at: [https://www.icrc.org/sites/default/files/document/file\\_list/4046\\_fundamental-principles-ru.pdf](https://www.icrc.org/sites/default/files/document/file_list/4046_fundamental-principles-ru.pdf) [Accessed 16.02.2025].

<sup>27</sup> The clause found in the preamble of the Second Hague Conference of 1899 concerning the Laws and Customs of War on Land states that, in situations not addressed by existing agreements, the nationality of the belligerents is safeguarded and serves as a foundation for international rights, as long as these rights are derived from enduring humanitarian principles and the requirements of public conscience. This provision was subsequently incorporated into various other treaties, forming a cornerstone of International Humanitarian Law.

restricting belligerents in their choice of means and methods of warfare (Art. 22) and outline the prohibited means of causing harm to the enemy (Art. 23).

The 1949 Geneva Conventions of 1949 also do not include specific norms on the protection of energy facilities. However, special norms applicable to certain energy facilities are established in the 1977 Additional Protocols I and II to the Geneva Conventions (hereinafter referred to as AP I and AP II).<sup>28</sup> According to Art. 56 of AP I and Art. 15 of AP II, “Works or installations containing dangerous forces, namely dams, dykes, and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.”<sup>29</sup> These articles specify particular objects enjoying special protection, while other installations and structures containing dangerous forces, as well as energy facilities in a broader sense, remain without special legal protection (e.g., pipelines, offshore oil platforms, solar panels).

During the 1974 Diplomatic Conference, a proposal was made to incorporate provisions into Art. 56 of AP I that would provide special protection for oil rigs, oil storage facilities, and oil refineries. However, it was concluded that these entities did not possess dangerous forces as defined by the article.<sup>30</sup> Additionally, there was a suggestion to amend the term “namely” to “such as” in order to broaden the definition of installations and structures; this amendment was ultimately not accepted, as the aim was to create a text that would be universally agreed upon.

In the research titled “Customary International Humanitarian Law,” it is stated that a customary norm exists that mandates that “if attacks are carried out on installations and other structures, special care must be taken to avoid the release of dangerous forces and consequent

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<sup>28</sup> Available at: <https://www.un.org/ru/humanitarian/law/geneva.shtml> [Accessed 16.02.2025].

<sup>29</sup> Available at: <https://www.un.org/ru/humanitarian/law/geneva.shtml> [Accessed 16.02.2025].

<sup>30</sup> Report of the Rapporteur to the Third Committee. CDDH/III/264, 13 March 1975, pp. 350–352.

severe losses among the civilian population” (Henckaerts and Doswald-Beck, 2005, pp. 139–142). Moreover, it is emphasized that the special care required for the objects mentioned in Art. 56 of AP I and Art. 15 of AP II should also extend to other structures, including chemical and petrochemical plants.

The stipulations outlined in Art. 56 of AP I and Art. 15 of AP II have faced significant criticism from experts in international law due to their lack of comprehensiveness and failure to consider other entities whose destruction could lead to irreversible damage (Kotlyarov, 2009, pp. 104–105). It has been noted that Art. 56 of AP I does not encompass additional installations, including those involved in the extraction of oil and petroleum products (Vitzthum, 2011, pp. 875–876). Furthermore, some scholars advocate for the inclusion of pipelines within the scope of international humanitarian law (IHL) norms (Vylegzhanin and Moskva, 2015). In Russian legal theory, a proposal has been made to adopt a more expansive definition of “objects containing dangerous forces” within the aforementioned articles (Puzyreva, 2007, p. 75).

Attacks on energy infrastructure inflict damage on both individual human rights — such as the deprivation of access to energy essential for nutrition and education — and collective rights, particularly the rights of peoples and nations to freely manage their natural resources, as well as the right to a healthy environment. Additionally, when energy facilities are targeted, the protection of the rights of legal entities becomes a pertinent issue, especially when the owners of these facilities are foreign corporations, thereby complicating the legal framework.

A separate legal challenge in protecting energy facilities during armed conflicts is the absence of special international treaties of a universal nature regarding the use of modern means and methods of warfare, such as cyber operations (Safonov et al., 2021, p. 45), unmanned aerial vehicles (UAVs) (Teteriuk and Chizhevsky, 2016), and autonomous weapon systems (AWS) (Ivanov et al., 2021).

The deployment of computer networks to target various entities in armed conflicts presents several legal dilemmas and questions: what qualifies as an attack under IHL? At what point does IHL become applicable to actions executed via computer networks (Sassòli, 2019, pp. 656–658)? What computer networks are deemed military objectives;

how the principles of IHL are maintained; and under what circumstances a cyberattack is regarded as direct participation in hostilities? Some of these issues are addressed in the contentious Tallinn Manual 2.0 (Schmitt et al., 2017, pp. 1–8), created by a panel of experts under NATO's guidance.

In legal doctrine, there are various approaches to qualifying a cyberattack: recognizing it as an act of aggression against a state (Jensen, 2002, p. 207) or considering it aggression only if it results in consequences equivalent to those caused by conventional weapons (Brown, 2006, pp. 187–188). Some argue that computer networks can be used as a legitimate means of conducting military operations against energy facilities, as they may reduce the risk of releasing dangerous forces (Schmitt, 2002). A number of countries have asserted the right to carry out preemptive cyberattacks, including against critical infrastructure facilities.

Cyberattacks inflict significant harm on the global economy. Information and communication technologies are frequently employed to meddle in the domestic affairs of nations. The lack of a universal international “code of conduct” in the cyber domain renders all countries susceptible to threats.<sup>31</sup> In December 2024, the UN General Assembly adopted the text of the Convention against Cybercrime that was developed at Russia's initiative. The primary objective of this Convention is to foster international collaboration in addressing specific crimes perpetrated through information and communication systems. Nevertheless, critical global issues persist, including the unregulated use of the Internet, the need for enhanced cybersecurity for nations, the absence of a cohesive conceptual framework, the execution of cyberattacks during both armed conflicts and peacetime, and the lack of international legal mechanisms for investigating cyberattacks and holding offenders accountable.

Significant damage to and destruction of energy facilities during armed conflicts are often caused by attacks using UAVs. The use of

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<sup>31</sup> Global'nyye problemy kiberbezopasnosti i mezhdunarodnyye initsiativy Rossii po bor'be s kiberprestupnost'yu [Global cybersecurity challenges and Russia's international initiatives to combat cybercrime]. Available at: [https://www.mid.ru/da/foreign\\_policy/news/-/asset\\_publisher/cKNonkJE02Bw/content/id/4350978](https://www.mid.ru/da/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/4350978) [Accessed 26.01.2025].

UAVs is not prohibited by international law. However, they remain subject to the restrictions and prohibitions established by the general norms of IHL. Additionally, complex legal issues arise, including the responsibility of the operator, owner, and manufacturer of UAVs. Furthermore, the use of UAVs in peacetime also presents challenges in establishing the legal grounds for their presence in the airspace of a foreign state (Kholikov and Sazonova, 2017).

The problems that may arise from attacks on energy facilities using AWS are linked to unresolved general issues regarding the use of AWS, such as maintaining human control over their operation, the ability of AWS to comply with IHL norms and recognize participants in armed conflicts, and holding software developers, operators, and commanders legally accountable (Ivanov et al., 2021). Gaps in legal regulation in this area, combined with the rapid development of military technologies, threaten the possibility of ensuring international peace and security and may lead to a loss of human control over the use of force (Skuratova and Korolkova, 2019). Furthermore, discussions are ongoing regarding the challenges of ensuring ethical norms in the development of AI technologies (Tikhomirov et al., 2019, pp. 240–242), granting “robots” special legal personality (Gabov and Khavanova, 2018), and the proposal to transfer certain algorithms and data into state ownership “to enhance transparency and ensure the safety of their use” (Shestak and Volevodz, 2019).

Despite the absence of specific international legal norms regulating the use of the aforementioned and other modern means and methods of warfare, they are subject to the general requirements and restrictions established by IHL, as well as to international legal norms on the responsibility of states and individuals.

## **II.2. Norms of Other Branches of International Law**

The regulations established by the 1982 United Nations Convention on the Law of the Sea are relevant to the safeguarding of energy facilities situated in maritime zones, particularly those pertaining to the establishment and utilization of artificial islands, installations, and

structures.<sup>32</sup> It is essential to recognize that the legal framework governing such facilities is contingent upon the specific type of maritime area in which they are situated. Additionally, it is important to highlight that the high seas are designated for peaceful activities. Facilities engaged in operations within the Area must also adhere to this principle of peaceful use, as outlined in Art. 88, 141, and 147 of the 1982 Convention. The 1982 Convention, along with the Convention on the Continental Shelf<sup>33</sup> and the 1958 Convention on the High Seas,<sup>34</sup> provides guidelines for the functioning of submarine pipelines. Any assault on these facilities or their destruction would constitute a breach of the rights of states that exercise jurisdiction over them, as well as infringe upon the property rights of the owners and operators of energy facilities.

The 1988 Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation establishes a list of criminal acts against ships not permanently attached to the seabed and obligates participating states to take the necessary measures to establish jurisdiction over these crimes.<sup>35</sup> The 2005 Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf extends the provisions of the 1988 Convention to fixed platforms located on the continental shelf and includes a list of unlawful acts against such facilities.<sup>36</sup> The 1990 International Convention on Oil Pollution Preparedness, Response and Co-operation obligates states to take appropriate measures to combat oil pollution and establishes

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<sup>32</sup> United Nations Convention on the Law of the Sea. Adopted on 10 December 1982. Available at: [https://www.un.org/Depts/los/convention\\_agreements/texts/unclos/unclos\\_r.pdf](https://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_r.pdf) [Accessed 16.02.2025].

<sup>33</sup> Convention on the Continental Shelf. Adopted on 29 April 1958. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/pdf/conts.pdf](https://www.un.org/ru/documents/decl_conv/conventions/pdf/conts.pdf) [Accessed 26.01.2025].

<sup>34</sup> Convention on the High Seas. Adopted on 29 April 1958. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/pdf/hsea.pdf](https://www.un.org/ru/documents/decl_conv/conventions/pdf/hsea.pdf) [Accessed 26.01.2025].

<sup>35</sup> Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation. Adopted on 10 March 1988. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/maritime.shtml](https://www.un.org/ru/documents/decl_conv/conventions/maritime.shtml) [Accessed 26.01.2025].

<sup>36</sup> Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf. Adopted on 14 October 2005. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/shelf\\_security.shtml](https://www.un.org/ru/documents/decl_conv/conventions/shelf_security.shtml) [Accessed 25.01.2025].

a mechanism for cooperation in the event of an incident causing oil pollution.<sup>37</sup>

In situations where the destruction of energy facilities leads to air pollution, applicable sources of international environmental law are invoked including the 1979 Convention on Long-Range Transboundary Air Pollution,<sup>38</sup> the 1985 Vienna Convention for the Protection of the Ozone Layer,<sup>39</sup> and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer,<sup>40</sup> among others. The special protection afforded to nuclear installations is grounded in the universal principles of international nuclear law that include the 1963 Vienna Convention on Civil Liability for Nuclear Damage,<sup>41</sup> the 1994 Convention on Nuclear Safety,<sup>42</sup> and the 1980 Convention on the Physical Protection of Nuclear Material and Nuclear Facilities.<sup>43</sup>

Attacks on energy facilities create complexities related to material liability for the damage caused and the protection of the rights of owners, especially if they are foreign investors or if the facilities were built as part of international energy projects. Accordingly, in such cases, the norms of international investment law and international energy law are

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<sup>37</sup> International Convention on Oil Pollution Preparedness, Response and Cooperation. Adopted on 30 November 1990. Available at: [https://www.un.org/ru/documents/treaty/oil\\_pollution\\_preparedness](https://www.un.org/ru/documents/treaty/oil_pollution_preparedness) [Accessed 26.01.2025].

<sup>38</sup> Convention on Long-Range Transboundary Air Pollution. Adopted on 13 November 1979. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/transboundary.shtml](https://www.un.org/ru/documents/decl_conv/conventions/transboundary.shtml) [Accessed 26.01.2025].

<sup>39</sup> Vienna Convention for the Protection of the Ozone Layer. Adopted on 22 March 1985. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/ozone.shtml](https://www.un.org/ru/documents/decl_conv/conventions/ozone.shtml) [Accessed 26.01.2025].

<sup>40</sup> Montreal Protocol on Substances that Deplete the Ozone Layer. Adopted on 16 September 1987. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/montreal\\_prot.shtml](https://www.un.org/ru/documents/decl_conv/conventions/montreal_prot.shtml) [Accessed 16.02.2025].

<sup>41</sup> Vienna Convention on Civil Liability for Nuclear Damage. Adopted on 21 May 1963. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/pdf/circ566.pdf](https://www.un.org/ru/documents/decl_conv/conventions/pdf/circ566.pdf) [Accessed 16.02.2025].

<sup>42</sup> Convention on Nuclear Safety. Adopted on 17 June 1994. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/pdf/circ449.pdf](https://www.un.org/ru/documents/decl_conv/conventions/pdf/circ449.pdf) [Accessed 16.02.2025].

<sup>43</sup> Convention on the Physical Protection of Nuclear Material and Nuclear Facilities. Adopted on 26 October 1980. Available at: [https://www.un.org/ru/documents/decl\\_conv/conventions/nucmat\\_protection.shtml](https://www.un.org/ru/documents/decl_conv/conventions/nucmat_protection.shtml) [Accessed 16.02.2025].

applied. The 1994 Energy Charter Treaty (Art. 12) provides guarantees to foreign investors whose investments in the territory of another State have suffered as a result of armed conflict, a state of emergency, civil unrest, or similar events.<sup>44</sup> The State must grant such investors the most favorable treatment in obtaining restitution, compensation, indemnification, or other forms of settlement.<sup>45</sup>

A number of bilateral international treaties of the Russian Federation regulating international projects for the construction of energy facilities include guarantees for the compensation of damages to organizations participating in the project in the event of armed conflicts or other uses of armed force. For example, Art. 4 of the 2015 Agreement between the Government of the Russian Federation and the Government of the Islamic Republic of Pakistan on Cooperation in the Implementation of the “North-South” Gas Pipeline Project stipulates that “the Pakistani Side guarantees to the authorized organization of the Russian Side and other organizations involved in the implementation of the project compensation for all direct losses incurred by them as a result of war or other military conflicts, revolution, insurrection, mutiny, riot, terrorist acts, and other similar events.”<sup>46</sup>

According to Art. 10 of the 1992 Agreement between the Government of the Russian Federation and the Government of the Islamic Republic of Iran on Cooperation in the Construction of a Nuclear Power Plant on the Territory of Iran, “if the implementation of this Agreement is disrupted... by wars, hostilities, or any other cause beyond the control of either Party,” representatives of the Governments must immediately consult with each other and agree on measures to minimize potential damage to both Parties.<sup>47</sup>

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<sup>44</sup> Energy Charter Treaty. Adopted on 17 December 1994. Available at: <https://www.energycharter.org/fileadmin/DocumentsMedia/Legal/ECT-ru.pdf> [Accessed 16.02.2025].

<sup>45</sup> Energy Charter Treaty. Adopted on 17 December 1994.

<sup>46</sup> Agreement between the Government of the Russian Federation and the Government of the Islamic Republic of Pakistan on cooperation in the implementation of the North-South gas pipeline construction project. Adopted on 16 October 2015. Available at: <https://www.consultant.ru> [Accessed 16.02.2025].

<sup>47</sup> Agreement between the Government of the Russian Federation and the Government of the Islamic Republic of Iran on cooperation in the construction of a nuclear power plant in Iran. Adopted on 25 August 1992. Available at: <https://www.consultant.ru> [Accessed 16.02.2025].

It is noteworthy that in 2009, Russia, having opted not to join the 1994 Energy Charter Treaty, formulated a Conceptual Approach to a New Legal Framework for International Energy Cooperation (Goals and Principles).<sup>48</sup> According to this document, Russia considers it necessary to develop a universal international treaty, the parties to which would include energy resource-producing (exporting), transit, and consuming (importing) countries, and which would cover all aspects of global energy interaction.<sup>49</sup>

In 2010, Russia introduced draft conventions aimed at promoting international energy security and addressing emergency situations related to the transit of energy materials and products. The draft convention defines international energy security as a condition of the global energy system where a dependable and continuous supply of energy materials and products to consumer nations is achieved under terms that are acceptable to all stakeholders in the global energy market, while minimizing environmental harm and supporting sustainable socio-economic development for the global community (Potanin, 2012, p. 140). Regrettably, this initiative remained only a draft, primarily due to the reluctance of European nations to shift these discussions from the framework of interregional cooperation — where the EU countries participating in the Energy Charter Treaty play a pivotal role — to a more universal platform. Should this proposal be realized in the future, it would be prudent to broaden the definition of international energy security to encompass the safety of energy infrastructure.

### III. Conclusion

The international legal framework governing the protection of energy facilities in times of armed conflict extends beyond the confines of IHL applicable during such conflicts. Attacks on energy infrastructure may result in breaches of obligations imposed by various branches

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<sup>48</sup> Conceptual Approach to the New Legal Framework for International Cooperation in the Energy Sector (goals and principles). Available at: <http://kremlin.ru/supplement/258> [Accessed 16.02.2025].

<sup>49</sup> Conceptual Approach to the New Legal Framework for International Cooperation in the Energy Sector (goals and principles).

of international law, including international environmental law, international maritime law, international nuclear law, and international energy law, as well as individual and collective human rights recognized in international human rights law. To ascertain the relevant legal provisions in each particular case, it is essential to consider multiple factors that have yet to be systematically organized within the realm of international law.

Many international legal issues related to the protection of energy facilities during armed conflicts stem from the changing nature of modern armed conflicts, the difficulty of determining the type of armed conflict to establish the scope of applicable norms, the blurring of boundaries between war and peace, and the challenges of applying the principle of distinction between civilian and military objects when planning and qualifying attacks on energy facilities. Additionally, the unresolved general international legal issues concerning the use of computer networks, autonomous weapon systems, and unmanned aerial vehicles directly and negatively impact the protection of energy facilities. Unfortunately, it is evident that these problems will not be resolved at a universal level through international cooperation in the near future.

A study of the IHL norms relevant to armed conflicts, alongside other international legal standards applicable to diverse energy facilities, reveals the necessity for their codification and progressive enhancement in light of contemporary international legal challenges. It is recommended that this endeavor be undertaken by the International Law Commission, a subsidiary organ of the UN General Assembly. Furthermore, the formulation and adoption of legal instruments addressing these matters at the regional or interregional level may result in heightened legal disputes among states, a situation that ought to be prevented.

The codification and progressive enhancement of international legal standards aimed at safeguarding energy facilities during both peacetime and wartime should be pursued in the following areas:

- 1) broadening the definition of “facilities containing dangerous forces” as established in the Additional Protocols of 1977 to the Geneva Conventions of 1949, as the current definition does not encompass

all categories of contemporary energy facilities across various energy sectors;

2) including in the Additional Protocols of 1977 of specific criteria to be utilized when planning attacks that would facilitate the determination of an energy facility's status (i.e., the classification of an energy facility as a military target);

3) incorporating in the proposed universal convention on international energy security, as suggested by Russia, of an expansive definition of "energy facility," along with criteria for their classification based on type, kind, territorial legal regime, the legal status of the facility itself, and its significance for the State's energy security;

4) establishing within this project of a mechanism for investigating attacks on energy facilities, as it is essential that, despite the existence of an investigation procedure under general international law, numerous attacks on energy facilities have not only evaded international scrutiny but have also been inadequately investigated under the national laws of the respective states;

5) formulating of a mechanism to hold states and other entities accountable for unlawful actions against energy facilities.

It seems that a specialized international legal approach should be developed to protect the energy facilities from the destruction that could cause significant or irreparable harm to the environment (i.e., trigger an environmental catastrophe). To address this issue, international legal approaches established under IHL for the protection of various categories of cultural property could be utilized.

Until the identified problems are resolved in a universal international treaty, it is essential to actively develop national legislation on the issues discussed in the research above to ensure the protection of Russia's energy facilities during armed conflicts and to prevent threats in peacetime. The legal positions formed by the Russian Federation on these matters should be actively and widely used in international cooperation, with efforts to enshrine these positions in regional international treaties that could be concluded within the framework of the Commonwealth of Independent States (CIS), the Collective Security Treaty Organization (CSTO), or the Shanghai Cooperation Organization (SCO).

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## References

Belous, A.I., (2020). *Cybersecurity of Fuel and Energy Complex Facilities: Concepts, Methods, and Means of Ensuring*. Moscow: Infra-Engineering Publ. (In Russ.).

Blishchenko, I.P., (1984). *Conventional Weapons and International Law*. Moscow: International Relations Publ. (In Russ.).

Brown, D., (2006). A Proposal for an International Convention to Regulate the Use of Information Systems in Armed Conflict. *Harvard International Law Journal*, 47 (1), pp. 179–201.

David, E., (2011). *Principles of the Law of Armed Conflicts: A Course of Lectures*. 2nd Russian ed., based on the 4th French ed., with additions by the author. Moscow: Infotropic Media Publ. (In Russ.).

Gabov, A.V. and Khavanova, I.A., (2018). The Evolution of Robots and Law in the 21st Century. *Tomsk State University Journal*, 435, pp. 215–233, doi: 10.17223/15617793/435/28. (In Russ.).

Glikman, O.V., (2018). The Significance of the Hague Conventions and Declarations of 1899 and 1907. *International Criminal Law and International Justice*, 3, pp. 6–9, doi: 10.17223/15617793/3/1. (In Russ.).

Guskova, Ye.Yu., (2012). *Mezhdunarodnyj tribunal po byvshej Jugoslavii: Deyatel'nost', rezul'taty, effektivnost'*. Moscow: Indrik Publ. (In Russ.).

Henckaerts, J.-M., and Doswald-Beck, L., (2005). *Customary International Humanitarian Law*. Cambridge: Cambridge University Press.

Henckaerts, J.-M. and Constantin, D., (2014). Protection of the Natural Environment. In: Clapham, A. and Gaeta, P. (eds). *The Oxford Handbook of International Law in Armed Conflict*. Oxford: Oxford University Press. Pp. 565–578.

Ivanov, D.V., Korzhenyak, A.M. and Lapikhina, E.S., (2021). Lethal Autonomous Weapon Systems and International Law. *Moscow Journal of International Law*, 3, pp. 6–19, doi: 10.24833/0869-0049-2021-3-6-19. (In Russ.).

Jensen, E.T., (2002). Computer Attacks on Critical National Infrastructure: A Use of Force Invoking the Right of Self-Defense. *Stanford Journal of International Law*, 38(2), pp. 207–232.

Kholikov, I.V. and Sazonova, K.L., (2017). International Legal Responsibility in the Context of Legal Regulation of Military Use of Unmanned Aerial Vehicles. *Military Law*, 4(44), pp. 217–226. (In Russ.).

Kotlyar, V.S., (2010). On the International Legal Position of the West in Light of New Challenges and Threats. *New Challenges and International Law*, 2, pp. 91–99. (In Russ.).

Kotlyarov, I.I., (2009). *International Humanitarian Law*. Moscow: Unity-Dana Publ.: Law and Justice. (In Russ.).

Kotlyarov, I.I., (2013). *International Legal Regulation of Armed Conflicts (Key Theoretical Issues and Practice)*. Moscow: Yurlitinform Publ. (In Russ.).

Maleev, Yu.N. and Glikman, O.V., (2008). Qualification of Armed Conflicts and Application of International Humanitarian Law: Issues Requiring Resolution. *International Law*, 4(36), pp. 5–26. (In Russ.).

Park, H. and Andrews, C., (2004). City Planning and Energy Use. In: Cleveland, C.C., (ed.). *Encyclopedia of Energy*. New York, USA, Elsevier, doi: 10.1016/B0-12-176480-X/00498-8. Pp. 317–330.

Potantin, M.M., (2012). International Energy Security Concept: Russia and APEC. *Prostranstvennaya Ekonomika [Spatial Economics]*, 2, pp. 139–145, doi: 10.14530/se.2012.2.139-145. (In Russ.).

Puzyreva, Yu.V., (2007). *International Legal Regulation of the Protection of Civilian Objects During Armed Conflicts*. Cand. Sci. (International Law) Diss. Moscow. (In Russ.).

Romanova, V.V. et al., (2015). *Energy Law. General Part. Special Part*. Moscow: Iurist Publ. (In Russ.).

Safonov, A.A. et al., (2021). *International Conflicts in the 21st Century: Textbook and Workshop for Universities*. 3rd ed., revised and expanded. Moscow: Yurayt Publ. (In Russ.).

Sassòli, M., (2019). *International Humanitarian Law: Rules, Controversies, and Solutions to Problems Arising in Warfare*. Cheltenham: Edward Elgar Publishing Limited, doi: 10.4337/9781786438553.

Savchuk, O.N. and Kondratyev, V.G., (2011). Features of Protecting Energy Facilities in the Context of Enemy Use of Precision-Guided Weapons. *Bulletin of St. Petersburg University of the State Fire Service of the Ministry of Emergency Situations of Russia*, 3, pp. 1–6. (In Russ.).

Schmitt, M., (2002). Electronic Warfare: Attacks on Computer Networks and Jus in Bello. *International Review of the Red Cross*, 846, pp. 121–163, doi: 10.1017/S1560775500097741.

Schmitt, M. et al., (2017). *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations*. Cambridge: Cambridge University Press.

Shestak, V.A. and Volevodz, A.G., (2019). Contemporary Needs for Legal Regulation of Artificial Intelligence: A View from Russia. *All-Russian Criminological Journal*, 13(2), pp. 197–206, doi: 10.17150/2500-4255.2019.13(2). (In Russ.).

Skuratova, A.Yu. and Korolkova, E.E., (2019). Lethal Autonomous Weapon Systems: Issues of International Legal Regulation. *Russian Legal Journal*, 1(124), pp. 22–30. (In Russ.).

Teteriuk, A.S. and Chizhevsky, Ya.A., (2016). Unmanned Aerial Vehicles in Asymmetric Conflicts. *International Processes*, 14, no. 2(45), pp. 189–201, doi: 10.17994/IT.2016.14.2.45/14. (In Russ.).

Tikhomirov, Yu.A. et al., (2019). *Legal Concept of Robotization*. Moscow: Prospekt Publ. (In Russ.).

Vitzthum, G.V., (2011). *International Law = Völkerrecht*. Moscow: Infotropic Media Publ. (In Russ.).

Vylegzhanin, A.N. and Moskva, U., (2015). International Legal Foundations of Transboundary Pipeline Management. *Law and Governance. XXI Century*, 3(36), pp. 62–69. (In Russ.).

Zhiznin, S., Timohov, V. and Dineva V., (2020). Energy Security: Theoretical Interpretations and Quantitative Evaluation. *International Journal of Energy Economics and Policy*, 10(2), pp. 390–400, doi: 10.32479/ijeeep.8950.

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