



INSIGHT

THE RUSSIAN WAR AGAINST UKRAINE AND THE LAW OF THE EUROPEAN UNION

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THE WAVE OF RUSSIAN ATTACKS ON UKRAINE'S POWER INFRASTRUCTURES: AN OPPORTUNITY TO INFUSE MEANINGFULNESS INTO THE NOTION OF "DUAL-USE OBJECTS"?

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ABSTRACT: The wave of attacks launched by Russia against Ukraine's power infrastructures since October 2022 represents one of the most debated and peculiar aspects of the current international armed conflict between the two countries. Although these types of attacks cannot be labelled as unprecedented nor understudied given their frequent occurrence in situations of armed conflict, some of the legal issues that they raise remain to this day unresolved and deserve to be further analysed and discussed. After setting the scene and providing an overview of the most salient facts, the present *Insight* will reflect on the so-called "dual-use" status of these targets, starting with questioning what this status entails and whether it is always correct to assume that the civilian function of dual-use objects does not figure into whether the object is a military objective for targeting purposes. After challenging this broadly permissive reading of art. 52(2) of Additional Protocol I to the Geneva Conventions, this *Insight* will turn to the application of the principle of proportionality in case of attacks against dual-use objects, supporting the view that this remains, to this day, the most promising - although not necessarily the only - option to accord greater protection to civilians from effects of attacks against facilities that are key to their survival.

KEYWORDS: power infrastructures – military objectives – dual-use objects – proportionality – Russia – Ukraine.

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I. INTRODUCTION AND AN OVERVIEW OF THE SALIENT FACTS

Since 10 October 2022 Russia has carried out a remarkable number of attacks against Ukraine's energy infrastructures.¹ The attacks have been strongly criticized by several commentators as they appear to be blatant violations of international humanitarian law.² Since the sustained bombardment of Ukraine's power infrastructure, Russia hit 112 different energy targets with 255 missiles, as reported in early March by Andriy Kostin, Ukraine's prosecutor general. The attacks disrupted for the whole winter the life of the Ukrainian population and ultimately, they severed Ukraine's connection to the European grid, a critical source of energy that has helped Ukraine prevent collapse in its own grid; as a result of it "on a continent of light, Ukraine was an island of darkness".³

The Russian attacks have been taking place without a foreseeable pattern, every few days, with Ukrainian people reacting how they could, *e.g.* cooking on camping stoves in candlelit kitchens, without being able to predict when the power will be restored and for how many hours. Dr Hans Henri P. Kluge, WHO Regional Director for Europe, shed further light on the situation, explaining that cold weather could kill, and indeed it did, as temperatures in Ukraine plummeted as low as -20 °C in parts of the country. According to Dr Kluge, in addition to the well-known and visible hurdles that desperate families had to overcome to try to stay warm, there are the invisible, and unfortunately still neglected issues, in particular the toll that the attacks took on the mental health of Ukrainians, at risk of mental disorders such as acute stress, anxiety, depression, substance use and post-traumatic stress disorder (PTSD).⁴ After winter has released its grip the Ukrainian power grid survived, although major threats to the power supply may still loom.⁵ The Russian assaults destroyed or damaged more than 40 per cent of the nation's energy infrastructure, and it will cost billions of dollars to repair, according to a report by the World Bank.⁶

As noted by Schmitt, "there is a long lineage of attacks against power systems during armed conflict",⁷ starting from the First World War to more recent conflicts. The past events on the one hand reinforced the idea that under International Humanitarian Law (IHL) the "dual-use" nature of power infrastructures, which commonly qualify as military

¹ M N Schmitt, 'Ukraine Symposium – Attacking Power Infrastructures under International Humanitarian Law' (20 October 2022) Articles of War lieber.westpoint.edu.

² B Tobias, 'Is Attacking Ukraine's Power Grid a War Crime?' (1 December 2022) BBC News www.bbc.com.

³ M Santora, 'How Ukraine's Power Grid Survived So Many Russian Bombings' (11 April 2023) NY Times www.nytimes.com.

⁴ Statement by Dr Hans Henri P Kluge, WHO Regional Director for Europe (21 November 2022) World Health Organization www.who.int.

⁵ M Santora, 'How Ukraine's Power Grid Survived So Many Russian Bombings' cit.

⁶ World Bank; Government of Ukraine; European Union; United Nations, 'Ukraine Rapid Damage and Needs Assessment: February 2022 – February 2023' documents.worldbank.org.

⁷ M N Schmitt, 'Ukraine Symposium' cit.

objectives, justifies the attacks despite the impact on the civilian population; on the other hand the strong criticism moved to those attacks over the years highlight the challenges that they pose to notorious pillars of the law of armed conflict,⁸ such as the principle of distinction and the proportionality rule. Notwithstanding the significant media attention devoted to Russia's attacks against Ukraine's power infrastructures, and a growing, and welcomed, tendency to resort to IHL to discuss the development of the armed conflict between Russia and Ukraine in extra academic settings, there is a need to further ponder why experts, as well as the public at large, find it difficult to come to terms with a strategy that has long been considered indispensable to any effective wartime campaign.

Some experts have already chimed in on the illegality of Russian attacks against Ukraine's power infrastructures,⁹ tackling different aspects, from the violation of the principles of precaution and proportionality, the rules prohibiting attacks on objects indispensable for the survival of civilians and of objects containing dangerous forces to the qualification of the attacks as acts of terrorism ex art. 51 (2) of Additional Protocol I (API) to the Geneva Conventions.¹⁰ Opting for a less explored focus, the present *Insight* will reflect on the so-called "dual-use" status of power infrastructures, starting with questioning what this status entails and whether it is always correct to assume that the civilian function of dual-use objects does not figure into whether the object is a military objective for targeting purposes.¹¹ Based on the current interpretation of the existing framework, whatever contribution the facility makes to civilian life drops out of the equation when planning an attack, subject only to subsequent application of the principle of proportionality.¹² After challenging this broadly permissive reading of the definition of military objectives, this work will turn to the application of the principle of proportionality to "dual-use" objects, claiming that it remains, to this day, the most promising option to accord greater protection to civilians from effects of attacks against facilities that are key to their survival. The latter aspect is the most scrutinized in relation to dual-use objects, and the discussion so

⁸ JW Crawford, 'The Law of Non-Combatant Immunity and the Targeting of National Electrical Power Systems' (1997) *The Fletcher Forum of World Affairs* www.fletcherforum.org 101; B Dougherty and N Quenivet, 'Has the Armed Conflict in Iraq Shown once more the Growing Dissension Regarding the Definition of a Legitimate Target?: What and Who can be Lawfully Targeted?' (2003) *Humanitäres Völkerrecht* 188.

⁹ MN Schmitt, 'Ukraine Symposium' cit.; G M Benedetto, 'Ukraine: Russia's attacks against energy infrastructure violate international humanitarian law' (23 December 2022) FIDH www.fidh.org; Human Rights Watch, 'Ukraine: Russian Attacks on Energy Grid Threaten Civilians Leveraging Civilian Harm as a Tactic of War; Millions Without Electricity, Water, Heat' (6 December 2022) www.hrw.org.

¹⁰ Additional Protocol I to the Geneva Conventions and relating to the Protection of Victims of International Armed Conflicts (adopted 8 June 1977, entered into force 12 December 1978) (Protocol I).

¹¹ "In so far as objects are concerned, military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose partial or total destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage". ICRC Database, 'Customary IHL, Rule 8: Definition of Military Objectives' ihl-databases.icrc.org.

¹² W Jang, 'For Whom the Bell of Proportionality Tolls: Three Proposals for Strengthening Proportionality Compliance' (2020) *IRRC* 629, 637.

far has covered also important issues, such as the interplay between the principles of precautions and proportionality, and the assessment of effectiveness based on the qualifications of the attack(s),¹³ that will not be examined in the present contribution.

II. THE STATUS OF POWER INFRASTRUCTURES UNDER INTERNATIONAL HUMANITARIAN LAW

The attacks carried out by Russian forces against Ukrainian power infrastructures represent an opportunity to reflect further on the meaning of the term “dual-use” objects, dwelling in particular on their status under the existing IHL framework, their position within the broader category of military objectives under which they have been numbly included and, more generally, the inconclusive nature of the effort to singling them out while at the same time failing to recognize that the civilian contributions by dual-use facilities cannot, and should not, “simply evaporate from the [targeting] analysis once the facilities are correctly classified as military objectives”.¹⁴ The Gulf War as well as the Kosovo conflict, have already showed how attacks on power plants that contribute to fulfilling both military and civilian needs may lead to the loss of electricity used for various purposes, including purify water, treat sewage, run hospitals, and otherwise support civilian life, with grave consequences for public health and the survival of the civilian population.¹⁵ As Human Rights Watch reported in an assessment of the coalition's attacks on Iraqi power grid during the Gulf War: “the cost to the civilian population of these attacks on the electrical system was severe. Iraq was quickly transformed from a modern, energy-dependent society into [...] a 'pre-industrial age' [one]”.¹⁶ Although it is obvious that the destruction, capture or neutralization of dual-use objects like power infrastructures will not carry the same consequences as those stemming from attacks against military objectives that do not provide support to the civilian population, the traditional reading of the current norms leads always to the same results: if dual-use objects qualify as military objectives they became lawful targets unless the collateral damage to civilians is expected to be excessive and therefore in violation of the principles of proportionality and

¹³ ICRC, ‘The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law – International Expert Meeting 22–23 June 2016’ www.icrc.org.

¹⁴ H Shue and D Wippman, ‘Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions’ (2022) *CornellIntlLJ* 559.

¹⁵ C Greenwood, ‘Customary International Law and the First Geneva Protocol of 1977 in the Gulf Conflict’ in P Rowe (ed.), *The Gulf War 1990–91 In International and English Law* (Routledge 1993) 13; M Sassoli and L Cameron, ‘The Protection of Civilian Objects: Current State of the Law and Issues de lege ferenda’ in N Ronzitti and G Venturini (eds), *The Law of Air Warfare: Contemporary Issues* (1st edn, Eleven International 2006) 55; M Roscini, ‘Targeting and Contemporary Aerial Bombardment’ (2005) *ICLQ* 411, 428. Roscini reports that the results of the heavy attacks against electrical generator facilities even prompted the Iraqi Government to accuse the Coalition of attempted genocide.

¹⁶ Human Rights Watch, ‘Needless Deaths in the Gulf War: Civilian Casualties During the Air Campaign and Violations of the Laws of War’ (1991) www.hrw.org.

precautions in attacks. In other words, and shifting from an abstract dimension to a more pragmatic one, a decision-maker pondering the legality of attacking a particular target must determine first whether the target is a military objective, and second, whether an attack on that target, even if it is a military objective, will be proportionate or indiscriminate.¹⁷ Prior to diving into the application of the proportionality principle, which remains the best, and least controversial, course of action to add to the equation some considerations on the civilian functions of dual-use objects, the next sub-paragraphs will discuss whether it would also be possible to restrain the overly permissive reading of art. 52(2) of AP I that too often allows, in the targeting phase, for the destruction of facilities performing indispensable civilian functions.

II.1. RISING TO THE OCCASION: PUSHING FOR A NARROWER DEFINITION OF MILITARY OBJECTIVES

As already stressed, under IHL power infrastructures traditionally fall under the category of military objectives,¹⁸ *i.e.* those objects which “by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage”.¹⁹ The definition of military objective in art. 52(2) consists of two parts, that together provide for a so-called “two-pronged test”. The first part restricts military objectives to objects making an effective contribution to military action. The second part introduces a further restriction that applies even to objects that satisfy the first part of the definition. Namely, the destruction, capture or neutralization of said military objective must offer a definite military advantage. This entails that also objects with the general characteristics of a military objective, *e.g.* a military airbase, do not qualify as legitimate target unless, in the concrete circumstances holding then and there, destroying them would provide no “definite military advantage”.²⁰ The concept of military advantage is essential to both the principle of proportionality and the definition of military objective, yet with regard to the latter the adjective “definite”, understood to mean that “the military advantage must be of some substance and it must be highly likely that the military advantageous effect will be attained”,²¹ makes the threshold lower than for the military advantage that is relevant to the proportionality analysis (“concrete and direct”), and one

¹⁷ H Shue and D Wippman, ‘Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions’ cit. 560.

¹⁸ W H Boothby, *The Law of Targeting* (Oxford University Press 2012) 600; Y Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict* (3rd ed. Cambridge University Press 2016) 358.

¹⁹ Art. 52(2) of Protocol I.

²⁰ H Shue and D Wippman, ‘Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions’ cit. 561.

²¹ Y Sandoz, C Swinarski and B Zimmermann, ‘Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949’ (1987) ICRC 635.

may rightfully questions why? Moreover, although prevailing military doctrine used to agree on infrastructure attacks, in particular attacks on the national power grid, being an essential mean to degrade enemy's defence and capabilities;²² the reality is far from this ill-founded assumption. Crawford for example notes a "paucity of empirical evidence" concerning the advantages of such attacks in Iraq,²³ and similar considerations have been shared in relation to the Kosovo conflict.²⁴

Obviously, art. 52(2), by drawing a line between civilian objects and military targets, represents an indispensable corollary to the principle of distinction, which is at the heart of the entire IHL framework.²⁵ In fact, in order to correctly apply the "basic rule" contained in art. 48 of API I, which calls on the parties to any international armed conflict to ensure respect for and protection of the civilian population and civilian objects, it is necessary to know what constitutes civilian objects, on the one hand, and military objectives, on the other. As is well known, the 1949 Geneva Conventions did not provide a definition of either civilian object or military objective, while the "formula" contained in the 1977 Additional Protocols represents a compromise in lieu of a more restrictive, and plausibly more effective, approach. Clearly, the principle of distinction is practically pointless, unless at least one of the categories between which the attacker must distinguish is defined. Because objects become military objectives according to their current or potential use by the enemy, rather than due to their intrinsic character, it was military objectives that were ultimately defined.²⁶ Therefore, the formula enshrined in AP I begins by declaring civilian objects immune and continues with an *a contrario* definition that outlines the essential elements of military objectives.

As reported in the 1987 Commentary on AP I to the Geneva Conventions,²⁷ for a long time, attempts have been made to go beyond a merely abstract definition of military objectives, starting with the non-exhaustive list contained in The Hague Convention IX of 1907 Concerning Bombardment by Naval Forces in Time of War.²⁸ In 1922 the

²² J W Crawford, 'The Law of Non-Combatant Immunity and the Targeting of National Electrical Power Systems' cit. 108-109.

²³ *Ibid.*

²⁴ P Rowe, 'Kosovo 1999: The Air Campaign: Have the Provisions of Additional Protocol I Withstood the Test?' (2000) IRRC 147, 159.

²⁵ N Melzer, 'The Principle of Distinction Between Civilians and Combatants' in A Clapham and P Gaeta (eds), *The Oxford Handbook of International Law in Armed Conflict* (Oxford University Press 2014) 296; M Sassoli, 'Targeting: The Scope and Utility of the Concept of Military Objectives for the Protection of Civilians in Contemporary Armed Conflicts' in D Wippman and M Evangelista (eds), *New Wars, New Laws? Applying the Laws of War in 21st Century Conflicts* (Transnational Publishers 2005) 181.

²⁶ N Lubell, 'Current Challenges with regard to the Notion of Military Objective – Legal and Operational Perspectives' in E Greppi (ed.), *Conduct of Hostilities: The Practice, the Law and the Future* (International Institute of Humanitarian Law/FrancoAngeli 2015) 79.

²⁷ Y Sandoz, C Swinarski and B Zimmermann, 'Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949' cit. 632.

²⁸ Art. 2 of the Hague Convention IX of 1907 Concerning Bombardment by Naval Forces in Time of War (adopted 18 October 1907, entered into force 26 January 1910) includes in the category of military

Commission of Jurists made a further effort to distinguish between civilian objects and military objectives by adopting a pragmatic approach that ultimately led to singling out the following items, *i.e.* "military forces, military works, military establishments or depots, manufacturing plants constituting important and well-known centers for the production of arms, ammunition or characterized military supplies, lines of communication or transport which are used for military purposes".²⁹ Similarly, The Hague Convention of 1954 for the Protection of Cultural Property provided a list of military objects, such as "an aerodrome, broadcasting station, establishment engaged upon work of national defence, a port or railway station of relative importance or a main line of communication".³⁰ Notably, those lists, which contain other dual-use objects, do not mention power infrastructures, thus inferring that perhaps their classification as military objectives is less obvious than originally assumed.

In 1956 the ICRC submitted its Draft Rules for the Limitation of Dangers incurred by the Civilian Population in Time of War. art. 7 of the Draft Rules enshrines an abstract definition of military objectives, while an annex to the rules enumerates the categories of military objectives to which attacks may be lawfully directed.³¹ The list of categories was drawn by the ICRC with the help of military experts, *i.e.* those who are actually called to make targeting decisions in the field; the scope of this endeavour is quite clear as providing the parties involved in an armed conflict with a precise catalogue would greatly simplify the practical implementation of the rules on distinction, allowing parties to overcome significant differences, that in past conflicts emerged due to various factors, *e.g.* "whether the territory concerned was their own, enemy territory, or territory of an ally occupied by enemy forces".³² However, as the work progressed, "it soon became clear that drawing up a list of military objectives or civilian objects would have raised insuperable problems, and the ICRC therefore abandoned the attempt".³³

Notwithstanding the scepticism of various States, the document is not without merits, and it represents, at the very least,³⁴ an authoritative starting point for a more

objectives the following: "military works, military or naval establishments, depots of arms or war matériel, workshops or plants which could be utilized for the needs of the hostile fleet or army, and the ships of war in the harbour, are not, however, included in this prohibition [...]"

²⁹ Art. 24 of the Rules concerning the Control of Wireless Telegraphy in Time of War and Air Warfare. Drafted by a Commission of Jurists at the Hague, December 1922 - February 1923.

³⁰ Art. 8(1) of Convention for the Protection of Cultural Property in the Event of Armed Conflict (adopted 14 May 1954, entered into force 7 August 1956).

³¹ Y Sandoz, C Swinarski and B Zimmermann, 'Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949' cit. 630-632 (emphasis added).

³² *Ibid.* 631.

³³ *Ibid.* 638.

³⁴ Since there was virtually no response from governments, no further action was taken with a view to adopting a convention on the basis of the draft rules. However, the document had some influence on the later attempts to define and develop the international law relating to armed conflicts, and to a large extent,

thorough reflection on the undeniable peculiarities of certain dual-use objects within the larger group of military objectives. At number 8 of the list there is the category of “Industries of fundamental importance for the conduct of the war”, with paragraph “e” referring to “installations providing energy *mainly for national defence, e.g. coal, other fuels, or atomic energy, and plants producing gas or electricity mainly for military consumption*”.³⁵ Notably, the ICRC list, besides being the only one to include energy infrastructures, requires that their qualification as military objectives shall be subject to additional considerations, *i.e.* whether their existence serves a national interest (defence) and their production is “mainly” destined to military consumption. In the case of Ukrainian power infrastructures hit by the widespread campaign of Russian missiles, the application of the stricter requirements foreseen in the ICRC document - which, again, is not a binding one - would certainly intensify the doubts on whether the facilities can be rightfully classified as military objectives. Being the whole purpose of IHL to strengthen the protection of the civilian population against the effects of hostilities, it seems plausible to promote an approach that would lead to fewer objects be classified as eligible to be bombed; for example, by advocating for an interpretation of “military advantage” that matches the higher threshold employed in the proportionality analysis and by excluding from the category of military objectives (that could be more precisely outlined through a list than an abstract formula) those objects that not only do not perform a “mainly military” function, but, as discussed in the following paragraph, can even be described as genuinely indispensable to the survival of the non-combatant population.

II.2. CAN “DUAL-USE OBJECTS” BE INDISPENSABLE TO THE SURVIVAL OF THE CIVILIAN POPULATION?

Power infrastructures, in Ukraine and elsewhere, are commonly labelled as “dual-use objects” in IHL parlance.³⁶ Despite being very popular, this term can be misleading as it does not entail a particular legal status, but it is only used colloquially for practical purposes.³⁷ “Dual-use” refers not simply to two uses but to two specific kinds of uses: civilian and military.³⁸ Currently the label “dual-use” is primarily applied to essential infrastructure such as electricity-generating installations and oil-refining facilities that serve civilian and

its provisions correspond to customary international law. D Schindler and J Toman (eds), *The Laws of Armed Conflict* (Brill 2004) 339.

³⁵ Y Sandoz, C Swinarski and B Zimmermann, ‘Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949’ cit. 638.

³⁶ E C Gillard, ‘Proportionality in the Conduct of Hostilities: The Incidental Harm Side of the Assessment’ (10 December 2018) Chatham House 47–48 www.chathamhouse.org.

³⁷ W Jang, ‘For Whom the Bell of Proportionality Tolls’ cit.

³⁸ H Shue and D Wippman, ‘Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions’ cit.

military purposes at once.³⁹ The challenges mainly arise when the two kinds of uses are simultaneous rather than alternative, thus referring to those instances when a facility continuously serves both civilian and military purposes at the same time. Under IHL, when a civilian object becomes a military objective it loses its immunity from attacks, but it can regain civilian status if the facts that made it a military objective change.

Neither the Geneva Conventions nor their Additional Protocols use the term “dual-use” or refer explicitly to dual-purpose facilities or objects.⁴⁰ However, the definition of military objective in the first part of art. 52(2) of AP I, and in particular the reference to an object’s “use” or “purpose”,⁴¹ can be read to classify every dual-use facility as a potential military objective. This reading has been described as “extraordinarily permissive in the bombing that it allows”,⁴² and consequently raises some concerns. The main problem can be summarised as follows: once a dual-use object has been identified as a military objective, no attention must be paid to that object's contribution to civilian life.⁴³ However, “state practice suggests that governments are uncomfortable with the notion that the civilian function of a dual-use facility can be ignored.”⁴⁴ Gillard makes a recommendation that builds on that statement, arguing that “states’ armed forces may also be required, as a matter of policy, to take the civilian function of military objectives into account in the targeting decision-making process.”⁴⁵ Hence, targeting of military objectives with “particularly important civilian functions” can call for special authorization from higher echelons of command, or such objectives may be placed on “no-strike lists”. Gillard does not delve into the meaning of the expression “particularly important civilian functions”, but it is safe to assume that the relevance of said functions can be assessed, for example, based on a facility's ability to produce or sustain objects that are indispensable to the survival of the civilian population ex art. 54 (2) of AP I.⁴⁶ A corollary to the

³⁹ *Ibid.* 561.

⁴⁰ EC Gillard, ‘Proportionality in the Conduct of Hostilities’ cit. 35-36.

⁴¹ To use Schmitt’s words “power infrastructure that supports military installations, equipment, or activities qualifies as a military objective based on the ‘use’ criterion so long as attacking it will benefit the attacking force. It is also possible that power infrastructure may become targetable based on the ‘purpose’ criterion, which denotes future use”. However, a mere possibility of such use is not enough; rather, there must be reliable intelligence or other indications leading to a reasonable conclusion that future use for military ends is highly likely. MN Schmitt, ‘Ukraine Symposium’ cit.

⁴² H Shue and D Wippman, ‘Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions’ cit. 562-563.

⁴³ *Ibid.*

⁴⁴ *Ibid.* 565.

⁴⁵ EC Gillard, ‘Proportionality in the Conduct of Hostilities’ cit. 36.

⁴⁶ According to Rule 54 of the ICRC Database: “Attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population is prohibited”. ICRC Database, ‘Customary IHL, Rule 54. Attacks against Objects Indispensable to the Survival of the Civilian Population’, ihl-databases.icrc.org. As noted by Schmitt the customary rule status of this provision remains disputed, however both Russia and Ukraine are parties to the AP I and therefore fully bound by the more restrictive treaty-

prohibition of starvation codified in paragraph 1 of art. 54, the provision contained in paragraph 2 prohibits attacks against objects, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, "for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive". As far as the purpose of the attack is concerned, the prohibition explicitly refers to an attacker's intent to deny essential items to the civilian population, whatever its underlying motivation. It is difficult at this stage to ascertain Russia's exact intention and motive, nonetheless, as reported by the UN Independent International Commission of Inquiry on Ukraine:

"The disruption of electric substations, power plants, and other installations which produce the energy and the heating indispensable to the survival of the population, has inflicted significant harm to civilians. Entire regions and millions of people have for periods been left without electricity or heating, particularly during winter, and consequently, with an impaired access to, notably, water, sanitation, food, healthcare, and education. Despite public information about the civilian harm after the first few attacks, Russian armed forces continued to target energy infrastructure".⁴⁷

It is likely that Russian forces wished to deprive Ukrainian civilians of heat or even water, and otherwise disrupt civilian life making the winter months very difficult to overcome. Although heat is not expressly mentioned, it is worth stressing that items included in the list are solely illustrative, and the category of indispensable objects may well include power for heating, depending on the specific context. Moreover, "drinking water installations" and "irrigation works" are indeed useless when deprived of the source of the electricity which they need to function.⁴⁸ Under paragraph 3 of the article, the prohibition in paragraph 2 does not apply to objects that are "used as sustenance solely for combatants or otherwise in direct support of military action", and hence qualify as military objectives. But even in this case, actions against those objects are prohibited if they may be "expected to leave the civilian population with such inadequate food or water as to cause its starvation or force its movement." The attacks did not result in starvation, but the extremely dire winter conditions caused Ukrainians to move away and, as of 21 February 2023, the United Nations High Commissioner for Refugees (UNHCR) reported about eight million refugees scattered across Europe, of which around 90 per cent were women

based rule. MN Schmitt, 'Ukraine Symposium - Further Thoughts on Russia's Campaign Against Ukraine's Power Infrastructure' (25 November 2022) *Articles of War* lieber.westpoint.edu.

⁴⁷ Human Rights Council, Report of the Independent International Commission of Inquiry on Ukraine of 15 March 2023, UN A/HRC/52/62, para. 41.

⁴⁸ H Shue and D Wippman, 'Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions' cit. 573.

and children.⁴⁹ The practice reported in the ICRC's Customary International Humanitarian Law database confirm States' abidance by the exception contained in paragraph 3 in the terms provided for in the rule.⁵⁰ Furthermore, the adverbs "solely" and "in direct" shall be given due weight as they require decision makers to engage in a proper assessment of the contribution of said objects to the military action.

A thorough and update study on state practice would be most welcome to verify whether there is, indeed, a trend to outlaw, at least as a matter of policy, targeting of dual-use facilities whose destruction affect indispensable objects ex art. 54(2) of AP I; in addition, it is always worth questioning if the notion of "military objectives" truly needs to be interpreted so broadly in order to fulfil its scope and to which degree this reading is actually compatible with the primary goal of IHL, *i.e.* protecting those who are not, or no longer, taking direct part in the hostilities.

III. THE APPLICATION OF THE PRINCIPLE OF PROPORTIONALITY IN CASE OF ATTACKS AGAINST DUAL-USE OBJECTS: TOWARDS A MORE STRINGENT STANDARD?

The previous paragraphs have already anticipated that over the years the application of a more stringent proportionality standard in case of attacks against dual-use objects has been widely considered as the most viable option to take into due account, and therefore limit, the effects of said attacks on the civilian functions of these targets. In a nutshell, the principle recognizes that, in the conduct of hostilities, causing incidental harm to civilians and civilian objects while attacking military objectives is often unavoidable, especially given the peculiarities of contemporary armed conflicts. However, the proportionality rule places a limit on the extent of incidental civilian harm that is permissible by spelling out how military necessity and considerations of humanity must be balanced in such situations.⁵¹

Moving from an abstract plane to the current scenario, the proportionality principle, as expressed in art. 51(5) of API,⁵² requires consideration of the harm to civilians and civilian objects when carrying out attacks against dual-use objects that qualify as military objectives. Unlike the first part of this work, which focused on a less explored aspect, *i.e.* the status of "dual-use" objects, the application of the principle of proportionality in situations that involve this category of targets has been carried out extensively, although without reaching an ultimate agreement on how to best factor the civilian function in the

⁴⁹ *Ibid.* para. 20.

⁵⁰ ICRC Database, 'Customary IHL, Rule 54. Attacks against Objects Indispensable to the Survival of the Civilian Population' cit.

⁵¹ ICRC, 'The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law' cit.

⁵² The provision prohibits as indiscriminate the launching of: "an attack which may be expected to cause incidental loss of civilian life, injury to civilians or damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated".

proportionality calculus.⁵³ There are two different, but parallel, tracks that can be taken to this end.

The first one focuses on the assessment of the collateral damage (or incidental harm, or civilian losses, etc...), by enlarging the scope of this crucial notion to include also the so-called “reverberating effects” that can result from an attack to a “dual-use” object.⁵⁴ It was after the 1990–1991 Gulf conflict that the question arose in as to whether the proportionality equation should consider longer term collateral damage caused by attacks against power infrastructures. Greenwood comments that “during the first Gulf conflict there were many more civilian deaths from the longer term results of the destruction of the power grids”, than there were during the actual attacks themselves.⁵⁵ This statement is echoed by Crawford, according to whom “as many as 70,000 non-combatant deaths can be directly attributed to the elimination of Iraq’s electrical power”.⁵⁶ It can be argued that State practice in the aftermath of the first Gulf war has evolved as belligerents in subsequent conflicts could no longer claim that the devastating effects of attacks on power infrastructures were only hypothetical.⁵⁷ Yet, the ICRC reports that this progress occurred “as a matter of policy rather than due to a sense of legal obligation”.⁵⁸ Moreover, the scope and nature of the reverberating effects are still the subject of intense discussion amongst experts,⁵⁹ who bring to the table diverging views on crucial issues, for example when it comes to the inclusion of mental harm,⁶⁰ or how objective the

⁵³ MN Schmitt, ‘The Principle of Discrimination in 21st Century Warfare’ (1999) *YaleHumRts&DevLJ* 143, 168; C Byron, ‘International Humanitarian Law and Bombing Campaigns: Legitimate Military Objectives and Excessive Collateral Damage’ (2010) *YIntlHL* 175; H Shue and D Wippman, ‘Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions’ cit.; EC Gillard, ‘Proportionality in the Conduct of Hostilities’ cit.; International Law Association Study Group (‘ILA’), ‘The Conduct of Hostilities and International Humanitarian Law - Challenges of 21st Century Warfare, Final Report’ (25 June 2017) ‘Part II: The Principle of Proportionality’ www.ila-hq.org.

⁵⁴ The terms reverberating effects, or knock on harm, refer to incidental harm that does not arise immediately or in one causal step, but that are still a consequence of the attack. EC Gillard, ‘Proportionality in the Conduct of Hostilities’ cit. 35.

⁵⁵ C Greenwood, ‘Customary International Law and the First Geneva Protocol of 1977 in the Gulf Conflict’ cit. 12-13.

⁵⁶ JW Crawford, ‘The Law of Non-Combatant Immunity and the Targeting of National Electrical Power Systems’ cit. 110.

⁵⁷ In the 2003 Gulf War the US-led coalition targeted switching stations instead of power stations, as the former are easier to repair than the latter and thus less likely to lead to long-lasting electricity cuts. ICRC, ‘The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law’ cit. 48.

⁵⁸ *Ibid.*

⁵⁹ ILA, ‘The Conduct of Hostilities and International Humanitarian Law’ cit. 24-25.

⁶⁰ EC Gillard, ‘Proportionality in the Conduct of Hostilities’ cit. 33. The author reports that “[w]hile there is no reason in principle to exclude mental harm from the scope of proportionality assessments, the majority of state practice considered for this paper does not take mental harm into account”.

foreseeability criterion could actually be,⁶¹ given that its determination is based on the value judgment of a "reasonable military commander".⁶²

The second, and less popular track to make the application of the proportionality rule more effective in case of attacks against dual-use objects is the one developed by Shue and Wippman.⁶³ The authors rightly note that the proportionality assessment, as traditionally understood, is unlikely to exercise much of a constraining influence on targeting decisions in case of attacks against dual-use objects, whenever it is difficult to appraise the extent of the military advantage and the extent of the civilian harm at issue.⁶⁴ Therefore, they propose two readings that can contribute to overcoming what they call a "limited application" of the proportionality principle, in which considerations of the civilian function of dual-use objects disappear. The first reading essentially advocates for the inclusion of long term and cumulative effects in the reverberating effects category and thus is in line with the trend already discussed above.⁶⁵ The second reading instead promotes a new approach, that the authors call "protective proportionality" and which places the accent on the indispensable nature of certain dual-use objects. According to the authors "one way to render the proportionality standard more stringent would be to insist that attacks against indispensable objects [...] be treated as impermissible unless the expected incidental civilian harm would not be excessive in relation to an anticipated military advantage that was *compelling*, not simply concrete and direct".⁶⁶

The goal of proposing a "compelling military advantage" standard is to strike a better balance between a level of protection that military planners would perceive as unacceptably high (*i.e.* promoting the removal of "dual-use" objects from target lists) and what amounts to very little protection of civilians from harms caused by attacks on infrastructure (*i.e.* the current interpretation of the norms in force). This approach is, in this author's view, the only one that could overcome the tension between the protection of civilians and the pursuit of military advantage, in compliance with "[t]he basic obligation to spare civilians and civilian objects as much as possible", that "must guide the attacking party when considering the proportionality of an attack".⁶⁷

⁶¹ On notion of foreseeability for the proportionality analysis it is worth recalling the authoritative contribution the International Criminal Tribunal for the Former Yugoslavia ('ICTY'): "in determining whether an attack was proportionate, it is necessary to examine whether a reasonably well-informed person in the circumstances of the actual perpetrator, making reasonable use of the information available to him or her, could have expected excessive civilian casualties to result from the attack". International Criminal Tribunal for the former Yugoslavia, judgment of 5 December 2003 IT-89-29-T *Prosecutor vs Galić* para. 58.

⁶² MN Schmitt, 'The Principle of Discrimination in 21st Century Warfare' cit. 152.

⁶³ H Shue and D Wippman, 'Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions' cit.

⁶⁴ *Ibid.* 572.

⁶⁵ The authors refer to it as "enhanced proportionality". *Ibid.* 570-572.

⁶⁶ *Ibid.* 574 (emphasis added).

⁶⁷ *Prosecutor vs Galić* cit. para. 58.

IV. CONCLUDING REMARKS

The armed conflict between Russia and Ukraine is first and foremost a devastating and epochal event, the main reason why international legal scholars spend time commenting on its key aspects is twofold, on the one hand to explain what happens to the larger public from a legal perspective, which, in theory at least, is as *super partes* as possible; on the other hand to try to promote the application of existing norms in a way that might enhance the protection of those who are affected by the conflict without taking part in it. The present *Insight* joins an enduring discussion on the meaning of “dual-use” objects, in particular power infrastructures, on the purpose of reinforcing the case for a tighter protection of these facilities, which have a long history of being swiftly labelled as military objectives. The starting point of this analysis is that the fact that those objects play an essential civilian function cannot be disregarded as a negligible piece of information in the hands of military decision makers.⁶⁸ The consequences of hitting power plants in past conflicts must serve as empirical data and this information must guide the different phases of an attack, from the identification of lawful targets, the planning, and the proportionality assessment. Without the ambition of providing an exhaustive overview of possible solutions, the present *Insight* first offered some thoughts on the qualification of power infrastructures as military objectives and then it reflected on how to apply the proportionality principle in a way that reconciles the traditional reading of the norm with the broader scope that it serves, by promoting a higher threshold for the justification of attacks on infrastructure indispensable for the survival of the civilian population.

⁶⁸ It is the ICRC’s position that the foreseeable indirect, or reverberating, incidental effects of an attack must also be considered in the proportionality assessment [...] Whether an effect is reasonably foreseeable will depend on the facts of each case; however, the assessment should be informed by past practices and empirical data. ICRC, ‘International Humanitarian Law and the Challenges of Contemporary Armed Conflicts Recommitting to Protection in Armed Conflict on the 70th Anniversary of the Geneva Conventions’ (2020) 90 shop.icrc.org.