

# **Energy as a Weapon in a New Generation of Warfare and Its Influence on National Defense Capability: Overview of the Ukrainian Case**

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# The plan of talk

1. Concept of New Generation Warfare
2. PEACE<sub>FARE</sub>
3. WAR<sub>FARE</sub>
4. COIN<sub>FARE</sub>
5. Host nation policy development
6. International policy development

# CLASSIC WAR

# NEW GENERATION WARFARE

*Everything possible will be done to set major Western Powers against each other.*

*Where individual governments stand in path of their purposes pressure will be brought for their removal from office.*

*They will, as a rule, work toward destruction of all forms of personal independence, economic, political or moral.*

*To undermine general political and strategic potential of major western powers, efforts will be made in such countries to disrupt national self confidence, to hamstring measures of national defense, to increase social and industrial unrest, to stimulate all forms of disunity.*

# COLD WAR

# ACTIVE MEASURES

## Operation Infektion:

<https://www.nytimes.com/2018/11/12/opinion/russia-meddling-disinformation-fake-news-elections.html>

# New Generation Warfare

The “**hybrid war**” - simultaneous and adaptive employment of a complex combination of **conventional weapons, irregular warfare, terrorism, and criminal behavior in the battlespace** to achieve political objectives.

*Frank G. Hofman. Hybrid vs. compound war  
Armed Forces Journal October 1, 2009*

- + **cyber attacks;**
- + **supported by a malicious information campaign.**
- + **coordinated by only a mission command center.**
- + **and political, economic, cultural domain.**

# New Generation Warfare

**The main form of hybrid war against Ukraine** is a combination of diverse and dynamic action of regular army forces of the Russian Federation together with illegal armed groups and criminal elements whose activities are coordinated and carried out by the only Concept and plan of action with vigorous employment of propaganda, deliberate damage, sabotage and terror.

The Concept of the Ukrainian security and defense sector development  
Approved by Order of President of Ukraine (№92, March 14, 2016)

# New Generation Warfare

## The Lessons of the “Arab Spring”

The very "rules of war" have changed. The role of nonmilitary means of achieving political and strategic goals has grown.....

The focus of applied methods of conflict has been altered **in the direction of the broad use of political, economic, informational, humanitarian, and other nonmilitary measures - applied in coordination with the protest potential of the population.**

All this is supplemented by military means of a concealed character, including carrying out actions of informational conflict and **the actions of special-operations forces**. The open use of forces - **often under the guise of peacekeeping and crisis regulation** - is resorted to only at a certain stage, primarily for the achievement of final success in the conflict.

V.Gerasimov  
Chief of the General Staff of the Armed Forces of the Russian Federation  
“The value of science lies in foresight”  
February 27, 2013

The Russian “hybrid war” against Ukraine demonstrates that influencing energy industry and services of Ukraine (including critical energy infrastructure) constitutes an important part of the **strategy of state** in war.

# HYBRID PEACE<sub>FARE</sub>: THREATS TO CRITICAL ENERGY INFRASTRUCTURE



# Russian energy policy of “peaceful period” towards Ukraine

There were three main directions of Russian policy (or “active measures”) targeting vulnerabilities of Ukrainian energy sector:

- Keeping Ukraine dependent on Russian technologies, components and services, while reducing Russian dependence. (Reducing Russian dependence on technological links with Ukraine; developing transportation routes bypassing Ukraine.)
- Keeping influence (control) over Ukrainian companies and markets. (Getting operational control over assets; privatizing companies through debt creation due to existing nontransparent gas trading deals; establishing JSC (consortium for Ukrainian transportation systems.)
- Blocking reforms in the energy sector. (Transparency of decision making, continuity and predictability of policy, termination of in-kind subsidies on energy markets.)

# Ukrainian energy dependence upon Russian (January 2014)

The Russian policy of influence resulted in deep dependence of Ukraine upon decisions of Kremlin, regarding:

- **Supply of fresh nuclear fuel from Russia to the Ukrainian NPP and managing of the waste and spent fuel.** (*Ukraine had been buying 100% of nuclear fuel from Russia and sending spent fuel to Russia for storage.*)
- **Natural gas supply for consumption.** (*70 + % dependence of total consumption and 100% of import.*)
- **Oil and oil-refinery products supply.** (*80% dependence of total consumption originated from Russian controlled oil-refineries.*)
- **Oil-refinery utilization rate.** (*80% crude oil supply from Russia; 4 from 6 oil-refineries were bought out by Russian capital + 1 disputed.*)
- **Transit routes capacity utilization rate** for the transportation of natural gas, oil. (*transportation volumes were determined by the decision of the Russian government.*)
- **Sustainability of the power and gas transmission systems.** (*depends on the synchronous operation of the systems of Ukraine and Russia.*)

**Only coal supply was relatively independent from Russia (Ukraine produced 100% of energy and 70% of coke types of coal)**

## Economic or political factors are behind a scene?

- **The “economic” approach** - all players are economically motivated, so disputes between countries is only commercial disagreements.
- **The “economy-political” approach** - sometimes players can act in noneconomic manners, some countries can use energy recourses to pursue its political as well as economical objectives.

Economic or political factors are behind a scene?

## NORD STREAM – Splitting Europe and Values

Modern example of a problem



# Economic or political factors are behind a scene?

The New York Times

ARCHIVES | 2003

## *Interview With President Putin*

By THE NEW YORK TIMES OCT. 5, 2003

We have a category of people who have become billionaires, as we say overnight. The state appointed them as billionaires. It simply gave out a huge amount of property, practically for free. They said it themselves, "I was appointed a billionaire."

***GASPROM***

***ROSNEFT***

***VTB***

***ROSTEX***

***RUSAL***

***LUKOIL***

***TROIKA DIALOG***

***CONCORD CATERING***

Are they just ordinary  
business entities?

# HYBRID WAR<sub>FARE</sub>: THREATS TO CRITICAL ENERGY INFRASTRUCTURE





# Угрупування ЗС РФ довкола України у березні 2014 року



AFU briefing: [http://komnbo.rada.gov.ua/komnbo/control/uk/publish/article?art\\_id=53452&cat\\_id=44731](http://komnbo.rada.gov.ua/komnbo/control/uk/publish/article?art_id=53452&cat_id=44731)



# The leakage

## The plan of Russian Army group troop "North" (operation in Ukraine)

(includes the list of CI have to be seized in first hours of operation)

7

№ п/п	Наименование объекта	Номер объекта	Местоположение	Координаты		Удаление от ГТ (км)	
				Прямоугольные			
				X	Y		
62.	Аэродром	371034	7 км южн. Сузы	5637910	6624293	50-51-30 сш, 34-45-55 вл	35 км
63.	Аэродром	371035	9 км вост. Ахтырка (63 км юго-вост. Сузы)	5576859	6644061	50-18-19 сш, 35-01-20 вл	38 км
64.	Аэродром	371036	3 км сев.-зап. Шестовица	5698605	6371883	51-24-10 сш, 31-09-32 вл	88 км
<b>Объекты топливно-энергетического комплекса</b>							
65.	Качановский газоперерабатывающий завод	378019	2 км сев.-вост. Мал. Пыльова, Сумская область	5575123	6611867	50 17 48 сш, 34 34 12 вл	66 км
66.	Газокомпрессорная станция	378022	2 км вост. Казенное, Сумская область	5592078	6593629	50 27 08 сш, 34 19 06 вл	78 км
67.	Газокомпрессорная станция	378025	4 км вост. Бушпа, Сумская область	5597426	6605127	50 29 54 сш, 34 28 54 вл	66 км
68.	Газокомпрессорная станция	378029	5 км вост. Алмазеева, Харьковская область	5478387	7307809	49 24 26 сш, 36 21 06 вл	92 км
69.	Газокомпрессорная станция	378030	4 км сев.-зап. Пятигорское, Харьковская область	5484777	7324701	49 28 11 сш, 36 34 53 вл	83 км
70.	Газокомпрессорная станция	378031	4 км сев. Пятигорское, Харьковская область	5485369	7325506	49 28 31 сш, 36 35 32 вл	84 км
71.	Газокомпрессорная станция	378032	5 км юго-зап. Пятигорское, Харьковская область	5477075	7324757	49 24 02 сш, 36 35 08 вл	92 км
72.	Газокомпрессорная станция	378033	2 км южнее Пятигорское, Харьковская область	5480700	7326486	49 26 01 сш, 36 36 28 вл	87 км
73.	Газокомпрессорная станция	378034	4 км южнее Пятигорское, Харьковская область	5477653	7326026	49 24 22 сш, 36 36 10 вл	89 км

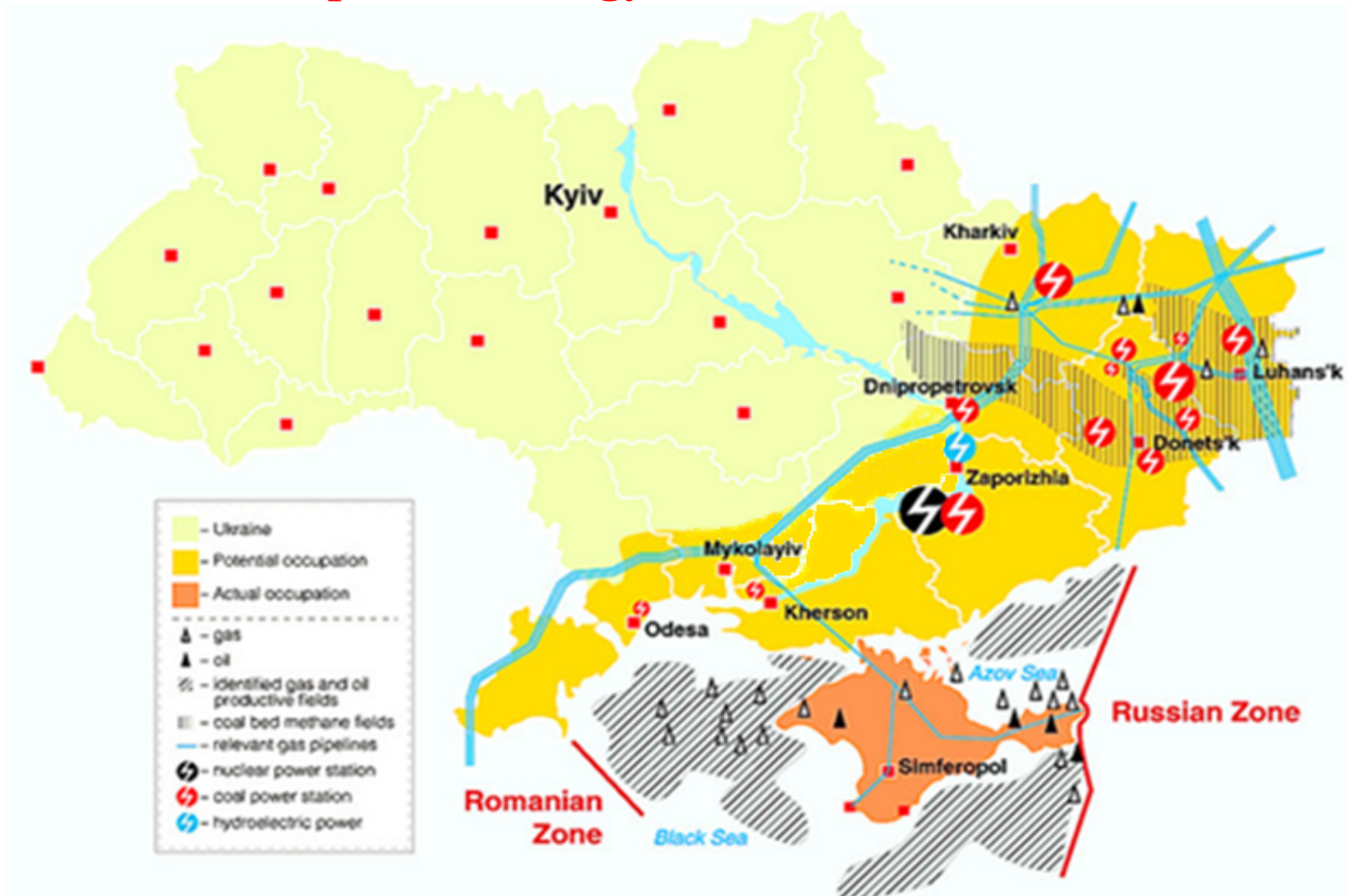
№ п/п	Наименование объекта	Номер объекта	Местоположение	Пр. X
74.	Газокомпрессорная станция	378035	6 км вост. Пятигорское, Харьковская область	54791
75.	Газокомпрессорная станция	378036	9 км зап. Волохов Яр, Харьковская область	55002
<b>Телерадиоцентры, станции и пункты</b>				
76.	Телецентр	379015	Сузы	56465
77.	Телецентр и приемная станция СС	379017	Харьков	55494
78.	Телецентр	379020	Чернягов	57086
79.	Передающая радиостанция	379025	Изюм	54509
80.	Передающая радиостанция	379026	Краматорск	54099

<b>Железнодорожные станции и мосты, автомобильные мосты, эстакады, туннели</b>						
81.	Автомобильный мост	378083	Чернягов-1	5694990	6375508	51 22 16 сш, 3
82.	Автомобильный мост	378084	Чернягов-2	5704420	6382036	51 27 26 сш, 3
83.	Автомобильный мост	378085	Чернягов-3	5707155	6382755	51 28 55 сш, 3
84.	Железнодорожный мост	378108	Чернягов	5703741	6380668	51 27 03 сш, 3
85.	Железнодорожный мост	378086	Харьков	5550245	7297518	50-02-57 сш, 3
86.	Железнодорожный мост	378087	Рызов	5540189	7294323	49-57-28 сш, 3
87.	Автомобильный мост	378088	13 км южнее Волчанск	5563755	7345796	50-11-06 сш, 3
88.	Автомобильный мост	378089	Черное	5566902	7389566	50-13-09 сш, 3
89.	Железнодорожный мост	378090	Гулы	5564696	6665969	50-11-25 сш, 3
90.	Автомобильный мост	378091	Чернешева	5553530	6659174	50-05-30 сш, 3
91.	Автомобильный мост	378092	Грушевка	5446544	7347053	49-07-56 сш, 3
92.	Железнодорожный мост	378093	Грушевка	5504084	7390153	49-39-31 сш, 3
93.	Автомобильный мост	378094	Сев.-вост. окраина Гороховатка	5468890	7394510	49-20-35 сш, 3
94.	Автомобильный мост	378095	Гусаровка	5470791	7337040	49-20-51 сш, 3





# Minimal Russian expectation of captured Energy Assets of Ukraine



# Gas Transit System of Ukraine

Locations of sabotage in  
May-June 2014





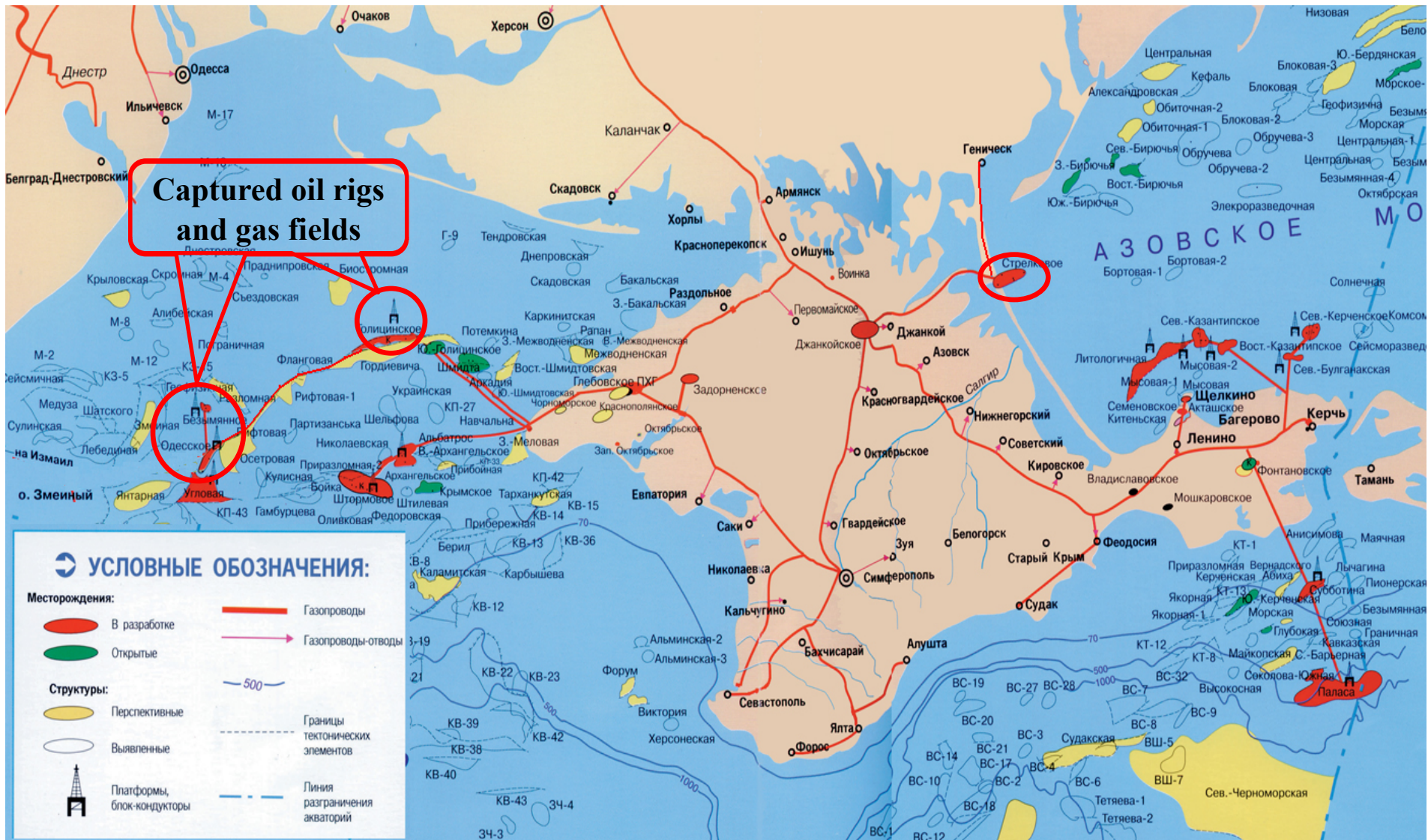
# Unified Electrical Power System of Ukraine

Cyber attack zone (2015)



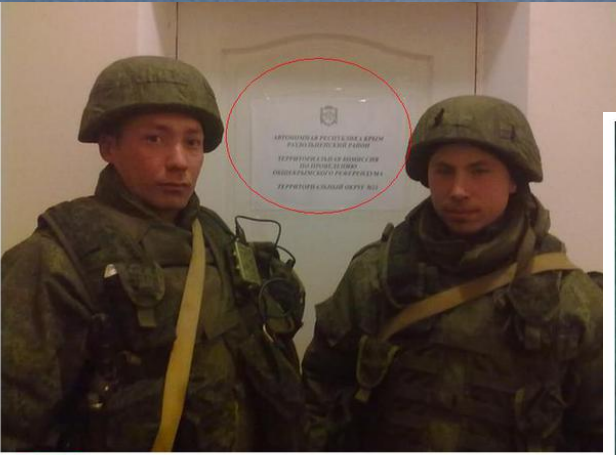
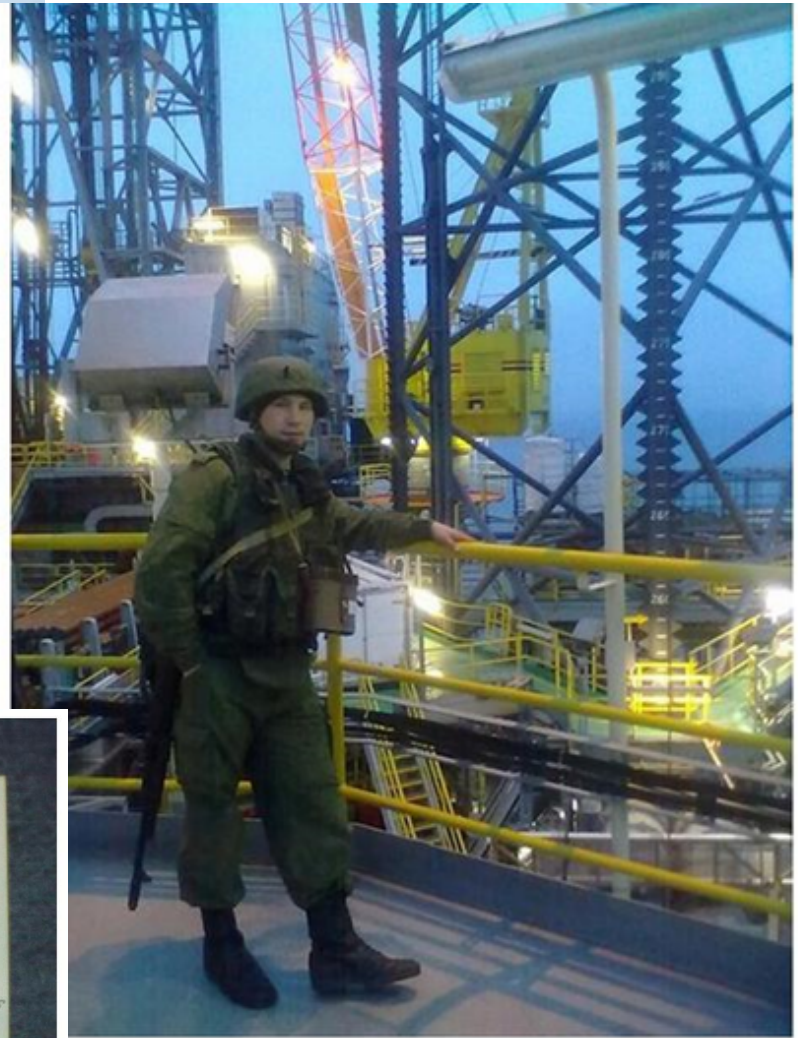


# Gas fields and gas network at Crimea





Oil rigs at Black Sea shelf  
(Odessa gas field) seized  
by Russian military in  
March 2014



КРЫМ

На этой фотографии: Тимур Татарин

Добавлена 2 декабря 2014 | Мне нравится 1

Иван Козлов  
армейка

Поделиться

Добавлена 21 декабря 2014 | Мне нравится 7

Иван Козлов  
армейка

я 2014 | Мне нравится 2

Иван Козлов  
армейка

## Restrictions of construction

Due to the unique construction features of the Kerch Bridge, to cross underneath vessels can be no more than 160 meters long, 31 meters wide and 33 meters tall, with a draft of up to 8 meters. From now on, vessels of Panamax type cannot pass through the canal.



## Blocking of free passage for vessels

On 25 November of 2018 Russia stopped all navigation through the waterway using a cargo ship accompanied by two Russian military boats standing under the arch of the Kerch Bridge and blocking the only passage through the strait.





Maidan of Foreign Affairs



The Institute of Strategic Black Sea Studies

News Black Sea

Renaissance

Captured by Russian forces oil rigs and fields (zones of permanent patrolling and protection by Russian Navy

Construction of the Kerch Strait Bridge and restriction of freedom of shipping



Sea Traffic in the Black and Azov Sea



**Location of shelling  
in July 2015**



## The threats to CEI in a “hybrid” warfare

Threats	Examples (the lessons from Ukraine)
<b>Blocking functioning and/or seizing of CEI (<i>capturing the income flow</i>)</b>	Seizure of Critical Energy Infrastructure (CEI) in Crimea and at occupied territories of Donbass
<b>Destruction of the power system (<i>increasing the burden cost</i>)</b>	Disabling (by different actions) TPP equipment, power lines, transformers
<b>Cyber attacks against CEI (<i>making dysfunctional systems</i>)</b>	Multistage and complex attacks at critical energy infrastructure

## The threats to CEI in a “hybrid” warfare

Threats	Examples (the lessons from Ukraine)
<b>Demolition of infrastructure</b> <i>(provoking humanitarian crisis)</i>	Dismantling of industrial enterprises, mines, tram- and railways, power lines at Donbass.  Repeated damage of water canals and water supply pumping stations. Looting of infrastructure
<b>Preventing restoration of CEI</b> <i>(getting better bargaining position)</i>	Militants have repeatedly shelled the critical infrastructure as well as restoration teams in order to prevent repairing the infrastructure.

# Cyber attacks against critical infrastructure

## December 2015 Attacks on power distributional network control centers

This activity was identified as a multi-stage intrusion campaign by cyber actors. After obtaining access, the cyber actors conducted network reconnaissance, moved laterally, and collected information pertaining to Industrial Control Systems.

**Attack caused blackout in three western regions of Ukraine**

### **Primary attack:**

- SCADA hijack with malicious operation to open breakers.

### **Supporting attacks:**

- Schedule disconnects for UPS systems
- Telephonic floods against distributional companies' customer support line.

### **Amplifying attacks:**

- KillDisk wiping of workstations, servers, and an HMI card inside of an RTU.
- Firmware attacks against Serial-to-Ethernet devices at substations.

## December 2016 Attack upon HV Substation, caused another blackout in Kyiv region

## Critical Infrastructure in Hybrid warfare

Particularly relevant is the rationale for creating an integrated system to protect the critical infrastructure from exposure in all areas during the immediate threat of aggression, when **the enemy will seek to destabilize the situation, create an atmosphere of chaos and uncontrollability.**

**This question is new in the theory and practice of military strategy and is subject to comprehensive scientific study.** The result of the work should be theoretical positions, and in practice the developed **system of joint use of multi-departmental forces** and means to ensure integrated security.

**V.Gerasimov**  
Chief of the General Staff of the Armed Forces of the Russian Federation  
«Vectors of military strategy development»  
02.03.2019

# Critical Infrastructure in Hybrid warfare

## Russian Naval Forces' role in the field of naval activity and critical infrastructure

Development and protection of underwater pipelines is one of most important priorities.

*Naval Doctrine of Russia up to 2030 (26 of July 2015)*

<http://kremlin.ru/events/president/news/50060>

Destruction of enemy's military and economic potential by striking its vital facilities from the sea.

*Fundamentals of the state policy of the Russian Federation in the field of naval activity for the period up to 2030. (20 of July 2017)*

<http://kremlin.ru/acts/bank/42117>

# ENERGY WEAPON AND ITS INFLUENCE ON NATIONAL SECURITY

## The “energy tools” of hybrid warfare

Aggressor's tools	Examples of Ukrainian campaign 2014-2015
<b><i>Causing economic losses</i></b>	<p>Seizure of energy production units and infrastructure. (<i>Industry, resources, infrastructure</i>)</p> <p>Payment for stolen resources, goods and services.</p> <ul style="list-style-type: none"><li>- <i>Ukraine compensates bills for energy supply to the occupied territories, while consumers of these areas do not pay.</i></li><li>- <i>Ukraine forced to buy coal captured from stolen mines at occupied territory (under the facade of Russian contracts).</i></li></ul>

# The “energy tools” of hybrid warfare

<b>Aggressor's tools</b>	<b>Examples of Ukrainian campaign 2014-2016</b>
<b><i>Obtaining tactical advantages</i></b>	<p>Protection against possible attacks by means of positioning military units at critical infrastructure. (<i>Chemical or power plants , energy supply networks</i>)</p> <p>Getting advantages in military operations. (<i>Aggressor knows about position of the forces protecting critical infrastructure, i.e., power plants, transportation hubs, airports.</i>)</p> <p>Getting advantages in political negotiation process. (<i>Ensuring favorable conditions for contracts on supplying recourses, spare parts, humanitarian corridors, ceasefire, peace talks, etc.</i>)</p>



## The “energy tools” of hybrid warfare

Aggressor's tools	Examples of Ukrainian campaign 2014-2016
<b><i>Creating psychological pressure</i></b>	<p>Distorting functioning of the Ukrainian unified energy system. (<i>Lack of fuel (coal, natural gas) for power generation.</i>)</p> <p>Stopping power supply. (<i>Damage to TPP and transformer substations, gas pipelines.</i>)</p> <p>Termination of water supply to cities due to breakdown of pumping stations. (<i>Damage to electrical network, pipelines, preventing repairs.</i>)</p>

## The “energy tools” of hybrid warfare

Aggressor's tools	Examples of Ukrainian campaign 2014-2016
<b><i>Forming preferable public opinion (support /pressure)</i></b>	<p>Publicizing “good” Russia and “bad Ukrainian government” that is unable to overcome energy supply disruptions. (<i>Chaos in energy industry, corruption and increasing of prices.</i>)</p> <p>Generating fake news. (Appeal of major town of Genitchesk (Kherson region) to Putin for gas supply.)</p> <p>Criticizing Ukraine on international level about power supply disruption to Crimea, and forcing Ukraine to “accept” occupation.</p>

К ИТОГОВЫМ ПРОГРАММАМ

ТЕМА СОБЫТИЕ	КОММЕНТАРИЙ
<p><b>Тема – Крым</b></p> <p>Встреча с Председателем Правительства Д.А.Медведевым (27 марта)</p> <p>Встреча с членами Совета палаты Совета Федерации (27 марта)</p>	<p><b>Главное:</b></p> <p>1. Следует разъяснять, что за 23 года нахождения в составе независимой Украины Крым по вине киевских властей в основном деградировал. <b>Цель российской власти сейчас – обеспечить становление новой жизни на полуострове, привести Крым к общероссийским стандартам в качестве жизни.</b></p> <p>Разгрести "авгиевы конюшни", оставленные украинской властью, <b>в одночасье не получится</b>, но работа в этом направлении ведется, и результаты крымчане будут ощущать ежедневно.</p> <p>На прошлой неделе по поручению В.В.Путина Крым и Севастополь посетил <b>ряд министров силового блока</b>. На следующей неделе ожидается поездка ряда других членов кабинета.</p> <p>2. Просьба активно включиться в работу по пропаганде <b>летнего отдыха в Крыму</b> близко, безопасно, у своих.</p>
<p><b>Тема – Украина</b></p>	<p><b>Основные линии информационной работы:</b></p> <ul style="list-style-type: none"> <li>- атмосфера беззакония, нарастающий хаос: нацисты на ключевых государственных постах, МВД парализовано страхом (все грозные слова после гибели А.Музыка остались только словами), разгул криминала, дурающего от собственной безнаказанности, рост преступности под видом "майдана",</li> <li>- экономика катится в пропасть: денег как не было, так и нет, объявлены уже в самом ближайшем будущем рост тарифов, снижение социальных выплат и секвестр бюджета,</li> <li>- на этом фоне особенно цинично выглядит нарастающая грызня за власть.</li> </ul>
<p><b>Тема – Развитие физкультуры и спорта, итоги зимней Олимпиады и Паралимпиады</b></p> <p>Заседание Совета по развитию физической культуры и спорта (24 марта)</p>	<p><b>Главное:</b></p> <ul style="list-style-type: none"> <li>- <b>успех российской сборной</b> на Олимпиаде и Паралимпиаде в Сочи доказали, что <b>Россия возвращается в число мировых спортивных лидеров.</b></li> <li>- <b>Главное теперь – закрепить этот успех.</b> Основной механизм такой работы – <b>развитие массового спорта, обеспечение его необходимой инфраструктурой,</b></li> <li>- <b>огромное значение в этой связи имеет возрождение комплекса ГТО</b> (подписан <b>Указ о Всероссийском физкультурно-спортивном комплексе "Готов к труду и обороне"</b> - <a href="http://news.kremlin.ru/news/20636">http://news.kremlin.ru/news/20636</a>).</li> </ul>

Unofficial requirements ("temnyk") to Russian media on Ukrainian-related issues in period from 28 of March – 6 of April, 2014

As requested by this "temnyk", in a 10-day period there were more than 120 fake publications at just one web-site, and just by a well-known St. Petersburg's Agency ("troll farm")

Юрий Христензен. Кашеева игла Кремля - на острие пропаганды.  
<http://www.kasparov.ru/material.php?id=5B221117D46C7>

## MANIPULATION and DISINFORMATION

### Russian TV-Chanel “First” spread another fake about Ukraine - **January, 2019**



The russian channel stated that in the **town of Smela** (Cherkasy region) there are huge problems with a heat supply for households, and a **“special police corps landed to prevent rallies and protests”**.



There was shown “a disappointed, complaining Ukrainian, former participant of “Euromaidan.” *“**Euromaidan** personally gave me nothing. Here, look where we are. It was necessary to look into the future, and in the future we were left without heat, with expensive energy, and it is not clear when all this will end. How to survive the winter, how to send children to school? ”*- Kirill Chubenko.

Later, this man was identified as Belorussian student. He had never been in Ukraine

## Learned lessons from Ukraine

- Intentional destruction of critical infrastructure and disruption of vital society functions should be considered as a hybrid tool of warfare and taken into consideration by security and defense policy.
- The destruction of the infrastructure is not the final goal of the attacks. The purpose is to achieve the larger goal of economic and political weakening of the country, and to bring the loyalists to power.
- Events involving critical infrastructure and its ability to provide vital society functions and services are accompanied by information (or rather disinformation) campaigns.

## Learned lessons from Ukraine :

In case of Ukraine, the messages of informational campaigns were different, depending on the target audience (i.e., Russia, Ukraine, or EU and USA):

- Western audiences: the promotion of the idea that Ukraine is an unreliable and even dangerous partner, because it can not ensure safety of its nuclear power plants/materials, reliability of natural gas transit to Europe, safety of civilians.
- Ukrainian and Russian audiences: there was a message that power in Ukraine was seized by a “junta”, which does not care about the people and cannot provide their safety.
- Simultaneously, a message was sent stating that the conflict was a Ukrainian civil war with no involvement from Russia, and that it threatened a humanitarian catastrophe on a European scale.



MEASURES COUNTERING THREATS  
TO ENERGY INFRASTRUCTURE:  
Ukrainian lessons

# COIN Strategy - Primacy of Non-Military Means

*U.S. Government Counterinsurgency Guide, 2009*

## COIN Operations

### **The U.S. Army and Marine Corps Counterinsurgency Field Manual**

*David H. Petraeus, 2006*

**Counterinsurgency** is military, paramilitary, political, economic, psychological, and civic actions taken by a government to defeat insurgency.

*Insurgents use all available tools—political (including diplomatic), informational (including appeals to religious, ethnic, or ideological beliefs), military, and economic—to overthrow the existing authority.*

**Political power** is the central issue in insurgencies and counterinsurgencies; each side aims to get the people to accept its governance or authority as legitimate.

**An essential COIN task** for military forces is fighting insurgents; however, these forces can and should use their capabilities to meet the local populace's fundamental needs as well.



# COIN operations

## The U.S. Army and Marine Corps Counterinsurgency Field Manual

*David H. Petraeus, 2006*

**Capabilities.** Capabilities can refer to the ability of local authorities—those of the host nation or some other body—to provide a populace with key functions or services. Commanders and staffs analyze capabilities from different perspectives, but generally put priority on understanding the capability of the Host Nation government to support the mission. The most essential capabilities are those required to save, sustain, or enhance life, in that order.

**Some of the capabilities are:** Public administration, Public safety, Emergency services, Water, Electricity, Sanitation, and Medical care.

*Figure 8–1. Comparison of essential services availability to insurgency effectiveness*

**Civil–Military Operations Center**

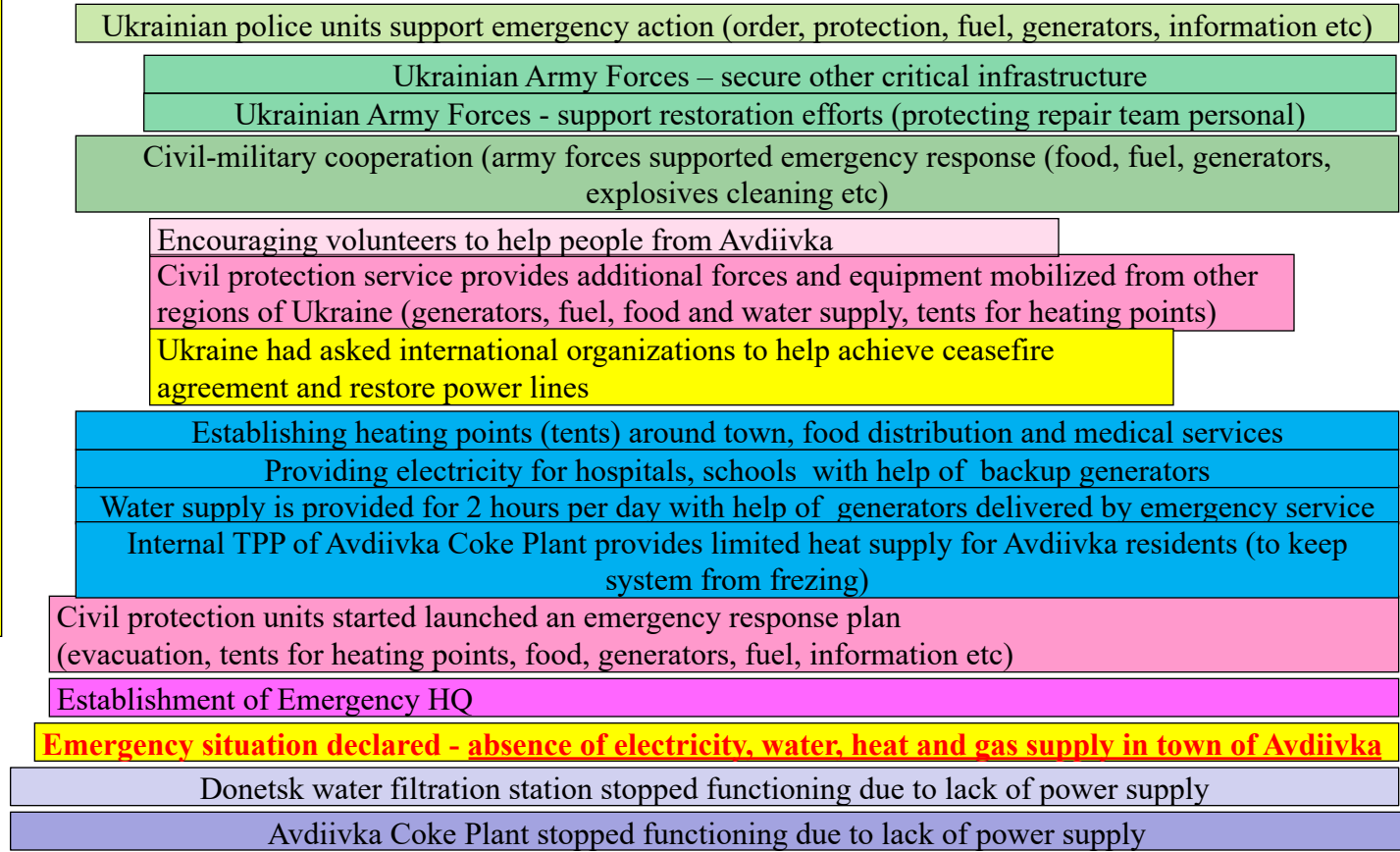
# Strengthening CIMIC and PPP on CIP issues (Avdiivka case)

**Location:**  
town of Avdiivka,  
neighborhood of  
Donetks.

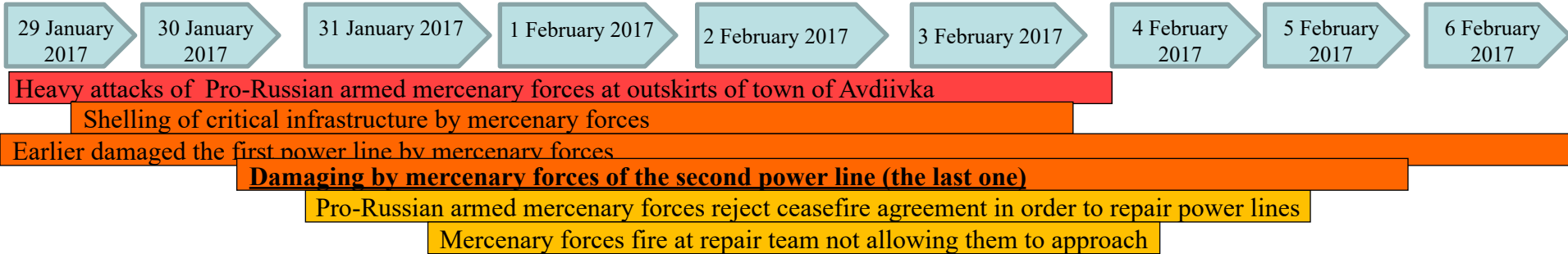
**Dates:**  
29/01-06/02 of 2017

**Weather:**  
temperature (- 20 C)

**Emergency:**  
damaged  
infrastructure;  
absence of heat,  
water, electricity



**Power lines repaired and restored: electricity supply, water supply, gas and heat supply**



## Measures taken by Ukraine in a period of war

- Enhancing protection of CI according to established level of threats. (Organizational and technical measures, responsibilities of army and law enforcement forces) – there is a need to have a list of CI.
- Increasing awareness of armed forces and law enforcement units about the importance of CI – there is a need to include CIP issues in defense planning and training (education and training).
- Strengthening civil-military cooperation, encouraging voluntary support in securing energy supply to households – there is a need to develop CIMIC, PPP, voluntary initiatives.
- Creating reserves of energy resources and generating capacities, using the capabilities of the armed forces – there is a need to identify the option when the army (other military structures) could provide temporal energy supply support of communities.

## Measures taken by Ukraine in a period of war

- Establishing a communication channel between the fighting parties
  - there is a need to involve a third party in order to secure ceasefire during repair work on restoring infrastructure.
- Coordinating the CI protection and restoration efforts
  - there is a need to set the groups that will protect the CI, and help in restoration (local authorities, army and law enforcement agencies, operators of CI).
- Establishing an international monitoring mission to prevent deliberate infrastructure damage and obstruction of CI restoration – there is a need to create an international legal basis.
- Establishing an international framework for preventing malicious infrastructure damage – there is a need to create international regulation on formation exchange and preventing CI damage.

## Measures taken in advance (preparedness plan)

The main set of measures could be realized through “engineering and technical measures of CI protection”:

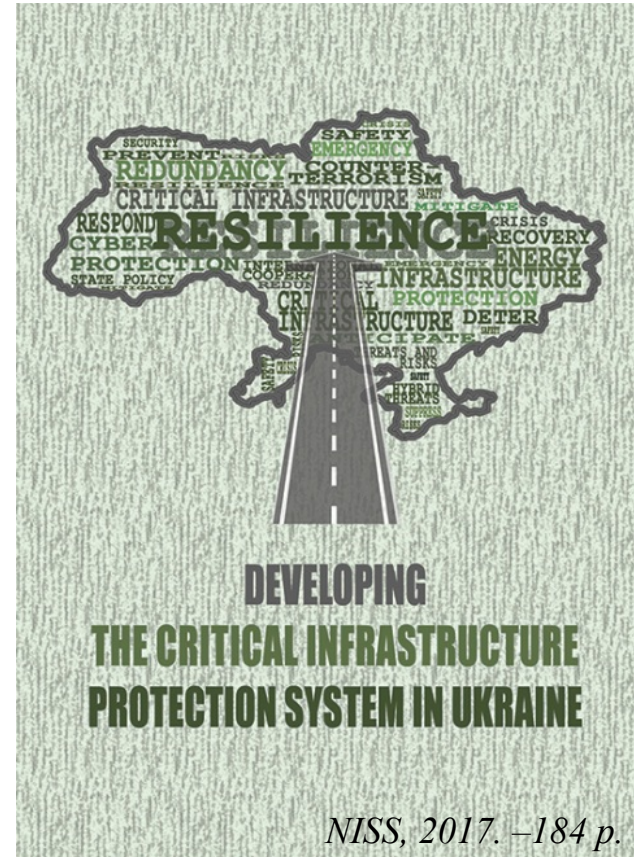
- Constructing physical protection barriers. (Walls, structures, buildings, installations.)
- Preparing reserve capacities. (Fuel reserves, switching of fuels, generation units, interconnections of transit and distribution lines.)
- Preparing emergency plans. (Establishment of a list of predefined actions, e.g., limits on power supply, timing of limitation, support of consumers, power switching, etc.)
- Setting the regimes of CI operation and information sharing according to levels of threats.

# POLICY DEVELOPMENT

# Developing CIP in Ukraine

**Improving legislation** – the need for common working language and unified procedures of communication and interactions.

*The Concept of Building a State Critical Infrastructure Protection System in Ukraine, approved by Resolution of Government of Ukraine of 6 December, 2017 № 1009-p.*



NISS, 2017. –184 p.

[http://en.niss.gov.ua/content/articles/files/niss\\_EnglCollection\\_druk-24cce.pdf](http://en.niss.gov.ua/content/articles/files/niss_EnglCollection_druk-24cce.pdf)

**Development of preparedness plan** – the need for clear procedures to coordinate efforts of different agencies. *Ukraine currently developing “The Critical Infrastructure Protection Law”; “The Energy Security Law”; and “The Energy Resilience Plan.”*

**Training and exercises** – the need for regular training, and looking for gaps in procedures. *Ukraine holds a number of Table-Top Exercises (“Coherent Resilience 2017 - on Critical Electrical Infrastructure Protection” and “Coherent Resilience 2018 - on Financial and Transport Infrastructure Protection”)*



## Table-Top Exercise «Coherent Resilience 2017»

The Ministry of energy and coal industry of Ukraine, the National Institute for Strategic Studies, together with the NATO Energy security Center of Excellence and Naval Postgraduate School have organized Table-Top Exercise «Coherent Resilience 2017» on Critical Electrical Infrastructure Security, which was held in Kyiv on 16-20 of October 2017

The table-top exercises had goals:

- To check existing procedures on prevention, protection, and response on incidents related to energy sector.
- To facilitate mutual cooperation departments in their actions to provide resilience of the National Power System, including international efforts to meet emerging security challenges.
- To identify the main aspects to be covered in developing contemporary Contingency plans for a Critical Energy Infrastructure – Unified Power System of Ukraine.



Participants were divided into four Syndicates, and were supposed to respond on vignettes and injections within existing Ukraine response and emergency plans and procedures with focus on:

**STRATCOM** (dealing with hostile propaganda and manipulations as well as crisis communication);

**SITE PROTECTION** (dealing with cyber and terrorist attacks at CEI site level);

**CRISIS RESPONSE** (dealing with and energy crisis response on national level and interagency interaction);

**INTERCOOP** (dealing with interaction and response at an international level).



# Appeal to humanitarian international law

## Geneva Conventions of 1949 are not explicit about critical infrastructure protection

Most of Geneva Convention acts deal with combatants.

The only Geneva Convention that does not deal with combatants is Convention (IV), which focuses on the protection of civilians but does not cover critical infrastructure objects.

Protocol I (8 June 1977) to the Geneva Conventions, relating to the Protection of Victims of International Armed Conflicts, includes an article that protects civilian objects from attack.

Unfortunately, the definition of civilian objects is not clear.

Convention (IV) relative to the Protection of Civilian Persons in Time of War

[http://www.un.org/en/genocideprevention/documents/atrocity-crimes/Doc.33\\_GC-IV-EN.pdf](http://www.un.org/en/genocideprevention/documents/atrocity-crimes/Doc.33_GC-IV-EN.pdf)

Protocols to the Geneva Conventions. [https://www.icrc.org/en/doc/assets/files/other/icrc\\_002\\_0321.pdf](https://www.icrc.org/en/doc/assets/files/other/icrc_002_0321.pdf)

# Increasing International Cooperation in Cybersecurity and Adapting Cyber Norms

**The United States** and fifty-five other countries have signed the important [Budapest Convention on Cybercrime](#) (2001), but Russia and China have not.

*Russia is the only nation participating in the Council of Europe not to have signed the Budapest Convention. The main reason for this is that paragraph 32 of the convention allows trans-border access to stored computer data during cybercrime investigations by the special services of various nations.*

**Russia** prepared the draft convention, “On Cooperation in Countering Informational Crime”. The draft was presented to the UN in 2011, but the US and EU nations subjected the document to harsh criticism, mostly because of Moscow’s alleged intent to establish stricter control over its national segment of the internet. The new version was presented in 2017.

**The EU Directive** [“On security of network and information systems”](#) (the NIS Directive) was adopted by the European Parliament on 6 July 2016 and entered into force in August 2016.

**We do not have a comprehensive, agreed by major actors, international legal framework in Cybersecurity**

## Establishing an international framework on critical infrastructure protection

On the initiative of Ukraine, the UN Security Council adopted Resolution 2341 which calls on Member States to address threats against critical infrastructure and to establish an international framework for critical infrastructure protection and to set the measures the UN Secretariat and Member States have to perform.

Security Council Calls on Member States to Address Threats against Critical Infrastructure, Unanimously Adopting Resolution 2341 (2017)

<https://www.un.org/press/en/2017/sc12714.doc.htm>

<http://unscr.com/en/resolutions/doc/2341>

Threats to international peace and security caused by terrorist acts.

[http://www.un.org/en/ga/search/view\\_doc.asp?symbol=S/RES/2341\(2017\)](http://www.un.org/en/ga/search/view_doc.asp?symbol=S/RES/2341(2017))

## **UN Security Council Resolution 2341 (2017) to Address Threats against Critical Infrastructure *calls upon* all Member States:**

- **To ensure that they have established criminal responsibility for terrorist attacks intended to destroy or disable CI, as well as the planning of, training for, financing of, and logistical support for such attacks.**
- **To establish partnerships with stakeholders (...), to share information and experience in order to prevent, protect, mitigate, investigate, respond to and recover from damage from terrorist attacks on CI, including relevant communication or emergency warning networks.**
- **To assist in the delivery of effective and targeted capacity development, training and other necessary resources (...) to enable all States to achieve the goal of protection of CI against terrorist attacks.**
- **To continue working together to facilitate technical assistance and capacity building, and to raise awareness in the field of protection of critical infrastructure from terrorist attacks, in particular by strengthening its dialogue with States.**

# Challenges to critical infrastructure protection in modern hybrid warfare

## **The problem:**

- The “infrastructural war” as a tool to influence population (not army forces) of countries under attack is a reality of modern warfare.
- The World does not have an international legal framework that could restrict targeted actions against critical infrastructure.

**The legal, political, ethical and moral restrictions  
on actions are in question!**

## **The hope:**

The more technologically, institutionally, and economically developed country the more vulnerable it is.

**Developed countries have higher motivation to pay attention to the problem**

**Thank You  
and have success in  
your efforts!**

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