SECOND UKRAINIAN ENERGY SECURITY DIALOGUE

Summary
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Ministry of Energy of Ukraine

dixigroup ANALYTICS ON DUTY

INTERNATIONAL RENAISSANCE FOUNDATION

KONRAD ADENAUER STIFTUNG

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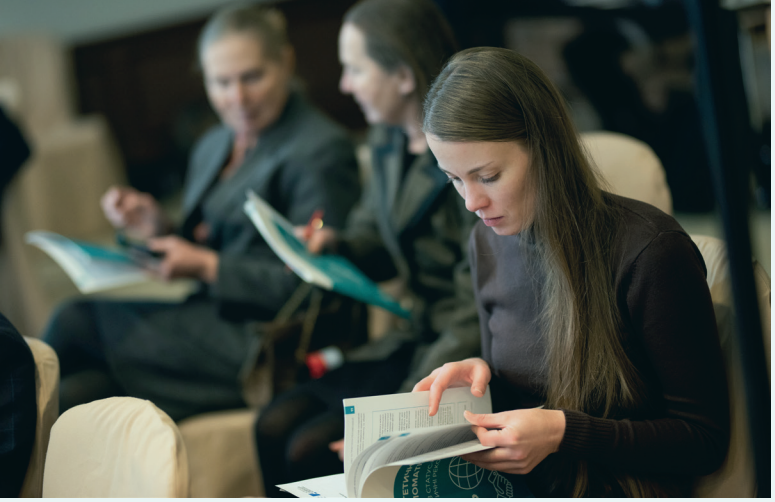

UKRAINIAN ENERGY SECURITY DIALOGUE

Ukrainian Energy Security Dialogue is an annual meeting that unites Ukrainian, European, and American stakeholders to discuss energy security issues of Ukraine and the region. We strive for the energy sector of Ukraine to finally receive proper development and become modern and resistant to new challenges. The Ukrainian Energy Security Dialogue is designed to find answers on how to do this.

On December 1, Ukraine celebrates the anniversary of its independence referendum of 1991, during which 90.32% of citizens voted for the independence of Ukraine. Our partners and we strive for freedom and security to always be the central leitmotif of all discussions and decisions regarding the energy sector of Ukraine.

The First Ukrainian Energy Security Dialogue was held in 2021 in cooperation with the Ministry of Foreign Affairs of Ukraine and with the financial support of the International Renaissance Foundation. During the first event, participants discussed the Ukrainian energy system on the way to ENTSO-E, the gas security agenda for Ukraine and its partners, and the gas crisis in Europe.

The Second Ukrainian Energy Security Dialogue was held in 2022 under the patronage of the Ministry of Energy of Ukraine and with the financial support of the International Renaissance Foundation and the Konrad Adenauer Foundation (Ukraine).

The main idea of the conference in 2022 was to study the lessons of the war between Ukraine and Russia for the energy sectors of countries on different continents – Europe, Africa, America, and Asia. The conference became a platform for disseminating best practices and solutions for overcoming the energy crisis that arose through Russia. The second part of the conference was devoted to the future of Ukraine in the EU - further integration of markets, investment attraction in the energy sector, etc.

The recording of the conference in English is available at DiXi Group Facebook page

SPEAKERS

Yaroslav DEMCHENKOV

Deputy Minister of Energy of Ukraine

Taras KACHKA

Deputy Minister of Economy of Ukraine, Trade representative of Ukraine

Mechthild WOERSDOERFER

Deputy Director-General for Energy of the European Commission (DG ENER)

Mary Burce WARLICK

Deputy Executive Director of the International Energy Agency

Dr. Dirk BUSCHLE

Deputy Director of the Energy Community Secretariat

Torsten WOELLERT

Minister Counsellor – Energy, EU Delegation to Ukraine

Tahir KAPETANOVIC

Chair of the System Operations Committee of ENTSO-E

Volodymyr KUDRYTSKYI

Chairman of the Management Board of NPC Ukrenergo

Mavriky KALUGIN

Member of the Executive Board, Chief Operating Officer of Naftogaz Group

Inna SOVSUN

Member Of Parliament, Verkhovna Rada Committee on Energy, Housing and Utilities Services

Serhiy SUKHOMLYN

Mayor of Zhytomyr

Oleksandr SIENKEVYCH

Mayor of Mykolaiv

Aigars LIEPINS

Lieutenant Colonel, NATO Energy Security Centre of Excellence

Dr. Martin JIRUSEK

Researcher, Department of International Relations and European Studies, Masaryk University

Dr. Alan RILEY

Senior Fellow, Atlantic Council in Washington D.C., Member of the Advisory Committee to the Ministerial Council of the Energy Community

Sagatom SAHA

Senior Associate, Energy Transition Practice, Macro Advisory Partners, Expert on Energy, Climate, Geopolitics, and Economic

Suriya JAYANTI

Senior Fellow, Atlantic Council, Managing director of Eney, US-Ukrainian decarbonization company

Dr. Benjamin SCHMITT

Harvard University / CEPA, former European Energy Security advisor at the US Department of State

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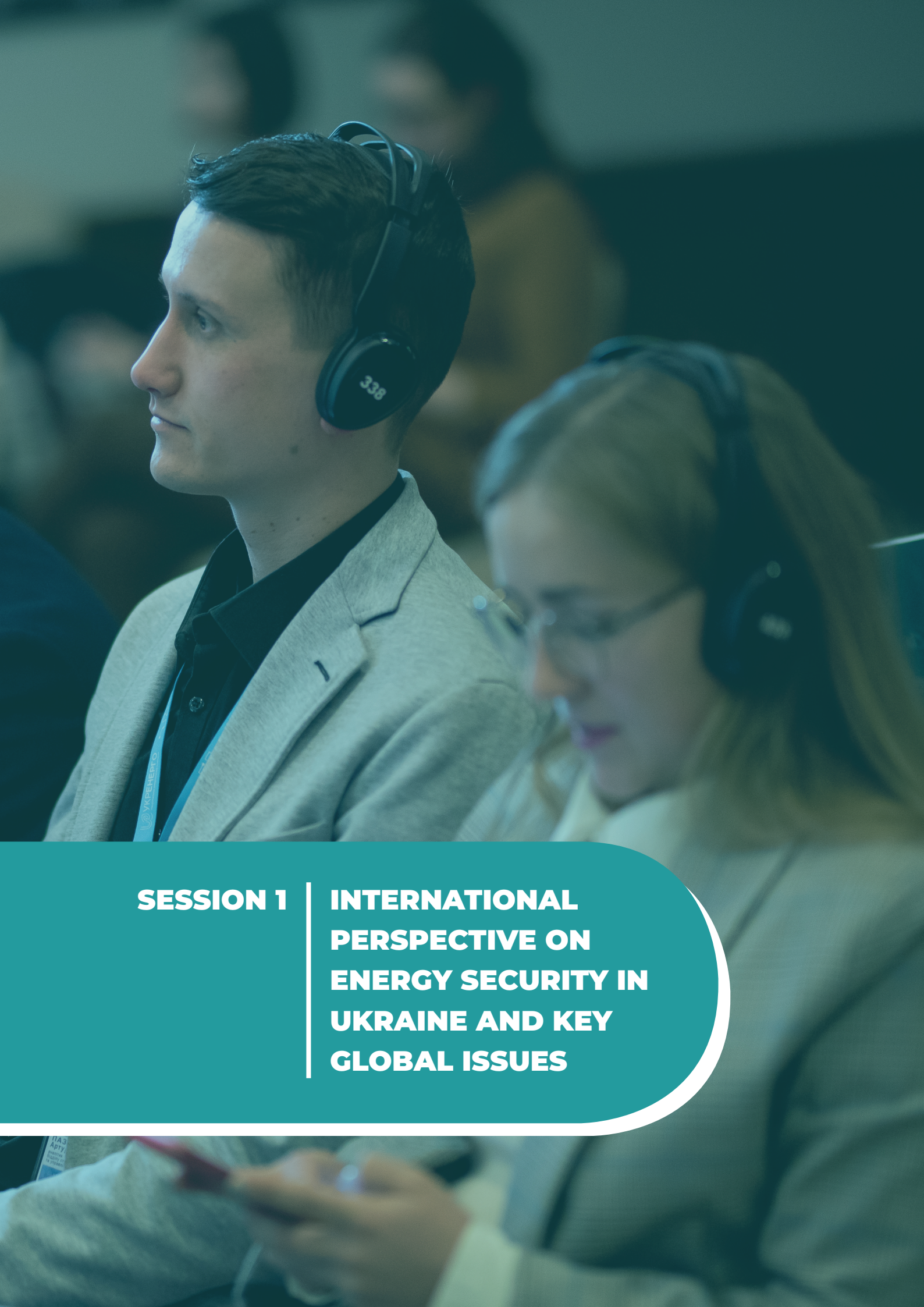


SESSION 1 | INTERNATIONAL PERSPECTIVE ON ENERGY SECURITY IN UKRAINE AND KEY GLOBAL ISSUES

Yaroslav DEMCHENKOV
Deputy Minister of Energy of Ukraine

Ukrainian energy security in the time of war

This Energy Security Dialogue is happening in a critical situation – for Ukraine and the rest of the world too. Our energy sector remains a significant frontline in this barbaric war. For Putin's regime, weaponizing energy and winter is a well-tested tactic.

I'm proud to say that our energy system has shown a true miracle of resilience; our energy professionals and line workers have been working twenty-four seven (24/7) to pull things back together, and, somehow, we have managed to prevent a total collapse.

Our strategic goal is to bring back a comfortable life to us by restoring our electricity supply. But at least we need to ensure stability and predictability for people by returning to scheduled disconnections. And at this point, after seven weeks of regular nationwide attacks, I must admit that we can't keep up without the help of the international community, as our resources are depleted. Even today, there is a considerable risk of a new attack; what we managed to repair could be destroyed repeatedly.

Now, more than ever, Ukraine needs to receive additional air and missile defense systems to close its sky from Russia's missiles, secure critical infrastructure and save the lives of innocent people.

At the same time, Russia should be stopped. It is not a secret that Russia finances its military from fossil and nuclear fuel incomes. That's why today, a proper and coordinated response should be to increase sanctions against Russia. They must be comprehensive and affect all crucial spheres. Russian fossil and nuclear fuels must be banned from the market of all civilized countries.

Volodymyr KUDRYTSKYI
Chairman of the Management Board of NPC Ukrenergo

From system integration to market integration

Russian attacks on the power system were the largest in human history. Russia launched over 1000 drones and missiles on power plants and Ukrenergo substations. It led to massive destruction; there were no TPP and HPP, which had not been damaged. Ukraine severely needs equipment. Our strategy is to mobilize financing and to find available equipment (transformers, switches, etc.) for substations and power plans to bring quickly to Ukraine and install. We need to continue the restoration of the power grid. It is much quicker for Russia to launch missiles than for us to repair the damages. We need to move faster, as we depleted the stock accumulated before the invasion.

Currently, we can cover 70-80% of consumption using generation. The problem is that we cannot operate ZNPP, and also have limitations on many TPPs and HPPs, which cannot fully release their capacity to the grid. To compensate for the deficit, balance the system and prevent significant emergency events like blackouts, we need to introduce rolling power cuts in all regions. Sequential disconnection of consumers is required to avoid further risks.

Since March 16, 2022, we have interconnected with the European continental grid, so attacks on the Ukrainian power grid mean attacking the European power system. Therefore, we are calling partners to help provide equipment and finance to procure this equipment and air defense systems.

Mechthild WOERSDOERFER
Deputy Director-General for Energy of the European Commission (DG ENER)

The EU's response to the challenges created by the war

The recent attacks were highly targeted, damaging, and extremely bad for everyone. What we can do, we can provide emergency equipment as swiftly as possible. We do that as a matter of priority; we do this at the Commission. It is challenging to deliver big transformers, but we do that with Emergency Crisis Center, Ukraine Support Task Force, and Ukraine Energy Support Fund at the Energy Community Secretariat technical level. Together with the USA and G7 countries, we follow international outreach – sent to all EU delegations requests on the need for equipment.

We are happy with how Ukraine and Moldova

were synchronized and congratulated TSOs on how they managed. We stay in daily contact with ENTSO-E and Energy Community to monitor the situation and to support cross-border trading.

We aim to reduce Russian gas share to zero as quickly as possible and switch to non-Russian suppliers, at least for the foreseeable future. Our absolute priority is energy efficiency and demand reduction; we need emergency measures to reduce gas demand by 15% and electricity by 10% (peak hours by 5%). The second priority here is the acceleration of RES deployment to replace gas. We see the potential for renewables in Ukraine, both solar and wind, once this emergency is over.

The integration of energy markets is not easy currently, but we still have a roadmap to underpin full integration in the EU.

Mary Burce WARLICK
Deputy Executive Director of the International Energy Agency

New opportunities and challenges for Asia, Africa, and the Middle East

IEA joins the international community in condemning attacks on Ukraine and stands with other partners to support Ukraine. We addressed member states with a list of Ukrenergo's needs to help contribute with equipment. We are also finalizing a joint work program to support Ukraine's energy sector with pillars of the secure power grid and renewables.

The countries of Asia, Africa, and the Middle East focus on energy security. Many countries are looking to increase energy subsidies and careful price rises and want to increase domestic energy production. Energy access is slowing down, with 200 million people losing such access due to rising prices.
Energy transition would be beneficial to rebuild a more substantial energy sector. IEA works with Ukraine to be ready to build the foundation for this more resilient path.

Many countries focus on building more resilient systems, investing, and scaling up renewables and other clean energy sources. We see a growing understanding and consensus to step up in the clear energy transition.

Mavriky KALUGIN
Member of the Executive Board, Chief Operating Officer of Naftogaz Group

New role and transformation of Naftogaz in addressing current challenges

We expanded in more bio and renewable resources in thermal generation.

We were able to modify and operate our wells and resumed drilling, coil tubing, and workovers. As of December 1, we are 2.7% down year-over-year. It's all workers and field personnel accomplishment.

The recent attacks impacted us directly. We purchased diesel power generators and were able to install the 'bare minimum' so that we would be better prepared. We aim to provide gas for Ukraine, even though consumption has decreased. If we could attract investment, we should increase production from shale plays significantly to make Ukraine a net exporter.

Aigars LIEPINS
Lieutenant Colonel, NATO Energy Security Centre of Excellence

Ensuring stability of energy markets and systems from the military perspective

Energy infrastructure is now an enemy target, and Ukraine's allies are trying to support Ukraine. NATO needs to reveal Russian strategy and, based on this, build stability in the future. Critical infrastructure protection and resilience have become top priorities now. Due to the explosion of gas pipelines in the Baltic Sea, NATO's presence in this sea increased (in particular, the number of ships doubled). A lot of critical infrastructures were also put under protection. NATO ministers decided to increase the contribution to critical infrastructure protection, including support for Ukraine - air defense and critical infrastructure repair. At a recent meeting of the ministers of NATO countries, they also announced an increase in the aid package from NATO, but not armed aid - we are talking about fuel and generators.

Our center works on projects to improve Ukraine's energy sustainability. The energy supply of the military forces is becoming increasingly important - NATO ensures that

the military receives the energy supply on time and as much as its needs. We also need to focus on future interoperability – particularly in energy transmission systems.

Dr. Benjamin SCHMITT
Harvard University / CEPA, former European Energy Security advisor at the US Department of State

New aspects of the common EU, US and Ukraine energy security policy

European energy security has become not just a niche branch of politics, but a prominent, central topic, as the main part of each country's national security. We have all seen satellite images of blackouts in various cities in Ukraine. These pictures should wake European leaders from the so-called «general fatigue of news from Ukraine» and warn of a pan-European problem. What the President of Ukraine Volodymyr Zelenskyi has now called «energy terrorism» requires efforts - technical assistance, quick replacement of equipment, supply of equipment that is currently «not lying on the shelves», and work on mobile communication for civilians and military. Ukraine needs the diversification of the energy infrastructure, more significant inflows of energy into the Ukrainian energy system and Western leaders' actions in freezing Russian oil and gas assets.

Kristine BERZINA
Security and Defense Policy, German Marshall Fund of the United States

US energy security cooperation with Ukraine and EU

The U.S. energy security cooperation with Ukraine and the EU is crucial. It is a triangle that functions in the actual flow of transformers, financing, and diplomacy.
As of now, we have 3-time horizons.

The immediate perspective – the need for energy equipment, providing money. The issue not touched upon is weaponry, and air defense systems, so that the energy system is not repeatedly attacked and does not collapse.

The mid-term perspective is replacing Russian gas on the European market. The U.S.'s role in providing LNG to the European market is increasingly important.

The third thing is the role of diplomacy – triangulation between Central Eastern Europe, Washington, and Western European capitals. Having this triangle diplomacy is essential.

Support to non-military support to Ukraine - you should explain the need. Still, the GOP electorate is concerned that the aid does not make sense to the needs of the U.S.

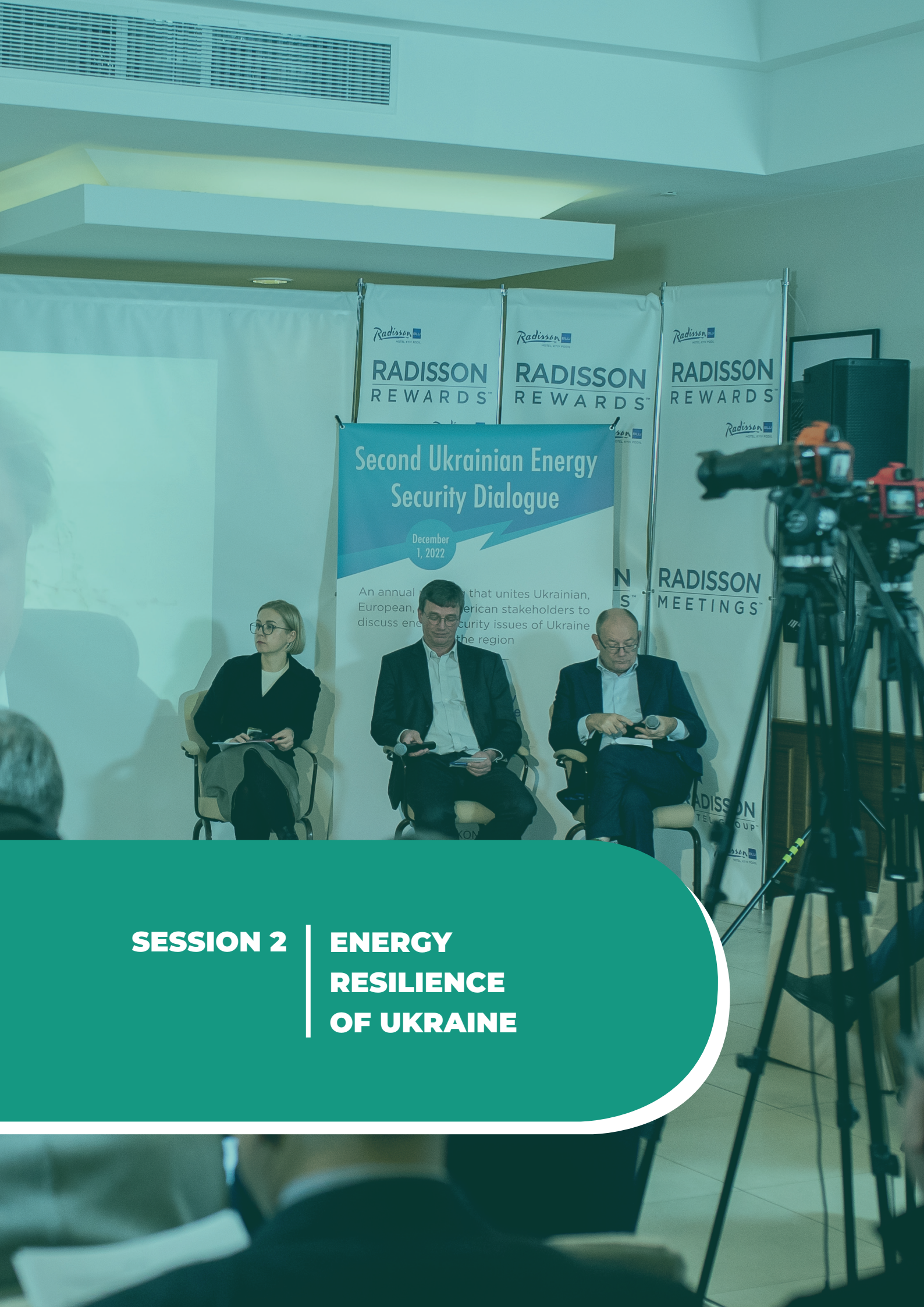
Sagatom SAHA
Senior Associate, Energy Transition Practice, Macro Advisory Partners, Expert on Energy, Climate, Geopolitics, and Economic

Hybrid and real threats to energy infrastructure

Allies should continue supplying Ukraine with weapons to protect itself and its energy system. We should understand that attacks on energy infrastructure are a marker of failure, not success.

In the short term, we heard a lot about what Ukraine needs. Aid to Ukraine should reflect the situation with attacks, and we see this with generators and transformers coming.

In the long term, the U.S. and other Ukraine allies redouble efforts to build a more resilient Ukrainian energy system. Financial aid is SMRs, clean hydrogen, and other cutting-edge technologies. Initiatives and partnerships are developing. In particular, the project on clean hydrogen from SMRs was announced. In any case, we should understand that the best long-term solution to energy security is energy transition.



SESSION 2 | ENERGY RESILIENCE OF UKRAINE

Taras KACHKA
Deputy Minister of Economy of Ukraine, Trade representative of Ukraine

Ukraine's resilience in fuel supply

The problem with fuel supply was so evident for 15 years – Ukraine used to import most of the oil products from Russia and Belarus. All measures to shift from these supplies were inefficient as commercial interests were stronger than any other. There were attempts of supplies from the sea and Lithuania, yet with limited capabilities.

In Ukraine, we had a complete suspension of supplies, a blockade of seaports, and the destruction of refineries and big fuel depots. We, a small coordinating group, did daily calls among all governmental institutions. We tried to find all available emergency and strategic reserves from partners (and there were substantial donations).

The main dimensions were contracting the fuel volumes and bringing them to Ukraine. The private companies, the Ukrainian government, and diplomats reached every possible European trader, so we took «everything on the shelf». The problem was that the market was tight, so initially, we hoovered all available volumes but then slowly increased production. The second problem was logistics – issues of interoperability of railways, so the main accent was road transport. Also, significant amounts of fuel should not be stored in Ukraine for security reasons. The next bottleneck was border controls, so 'green corridors' were organized.

One of the most significant elements of success was the shift in the regulation of fuel prices. Since we had total unpredictability in the market, a brave decision was made to cancel VAT and all import duties to provide flexibility for the traders. It generally helped to avoid price spikes – this is the case of how deregulation can help increase supply in a decentralized and competitive manner. It also helped to come back to regular taxation of fuel later. Good knowledge of the market in government was also helpful, allowing us to maintain professional dialogue with the industry.

Tahir KAPETANOVIC
Chair of the System Operations Committee of ENTSO-E

Further developments of the intense cooperation between Ukraine and EU

We were working with the UA power system, but we expected resilience with a significant load margin, strong grid, and quality of the staff. What surprised me was the speed Ukraine has managed the problems– the strength of colleagues at Ukrenergo. After a few hours after the blackout, we were back reconnected, and the system was completely restored; the next day, Ukrenergo started connecting the consumers. The quality and professionalism of the Ukrainians are astonishing. I would also praise the cybersecurity specialists at Ukrenergo.

We were trying to expand the capacity for exports, but now it's vice versa. Now we are exchanging power in real-time, without this frequency control, it would not be possible to keep Ukraine's system that stable. We are proud and honored to support the system in this way.

The first task for lawmakers and regulators after the war is market development; in technical terms, the future is energy independence, but you need to build and strengthen infrastructure.

Torsten WOELLERT
Minister Counsellor – Energy, EU Delegation to Ukraine

Transformation of the common EU energy security policy

The Build Back Better Plan is creating a modern energy system that is more efficient and decentralized. It brings us to the investment question. If you try to mobilize the market, you will be more efficient than having a centralized system Ukraine inherited. Not only technology-wise. If you look at the ownership structure, you will see that big state-owned and private companies come from the assets of the Soviet system.

It would help if you had investors everywhere and in medium and small businesses for a modern decentralized system. You also need a more diverse community of investors. Many have promoted SMRs, but you must now consider a military dimension that one can no longer ignore. The new energy system has to be secure by design and resilient to military attacks.

Partnerships, especially local ones – businesses willing to have stable energy supplies which can partner with foreign counterparts – will bring more stability and certainty. With a good international partner, e.g., EBRD, you will also have more internal stability.

Dr. Dirk BUSCHLE
Deputy Director of the Energy Community Secretariat

Reducing dependence on fossil fuels as a component of energy security

On immediate support, Energy Community is not only supporting logistics of in-kind donations; a lot is being done together with the EU institutions in charge to speed up deliveries. We have also established UESF, which is collecting financial donations. Now we are standing at 30 million and envisage a bigger top-up soon. It is essential to have different channels to use these funds and procure equipment. The bottlenecks are the manufacturers' and vendors' markets, reaching out to speed up production and delivery.

Ukraine can become part of Europe if synchronization is not only in technical measures but also in terms of rules and best practices. The level of reform was significant before the war broke out, and it is essential to go the whole way of reforming the energy market.

We fully support President Zelenskyi's assumption that after the war green energy sector will develop into one of the critical pillars of the economy. For renewables, we have the chance to replicate what is done in Europe and leapfrog to a more decentralized RES-based system – both for its own benefit and for exports. Second area is the better interconnection of infrastructure and better fit to TEN rules supporting additional infrastructure to be built across borders. The last and most crucial element would be strategic planning to give investors assurances – the gold standard for such planning is National energy and climate plans, which reconcile all policies and measures. Well-developed NECP can potentially become a roadmap for such a transition.

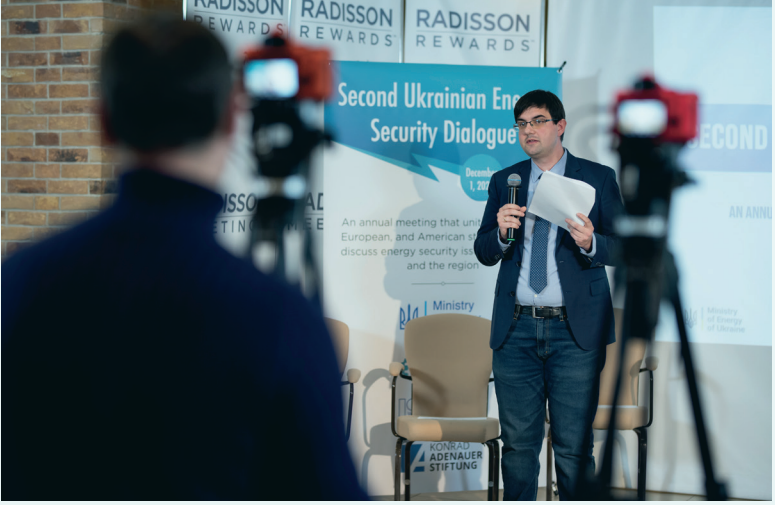
Dr. Alan RILEY
Senior Fellow, Atlantic Council in Washington D.C., Member of the Advisory Committee to the Ministerial Council of the Energy Community

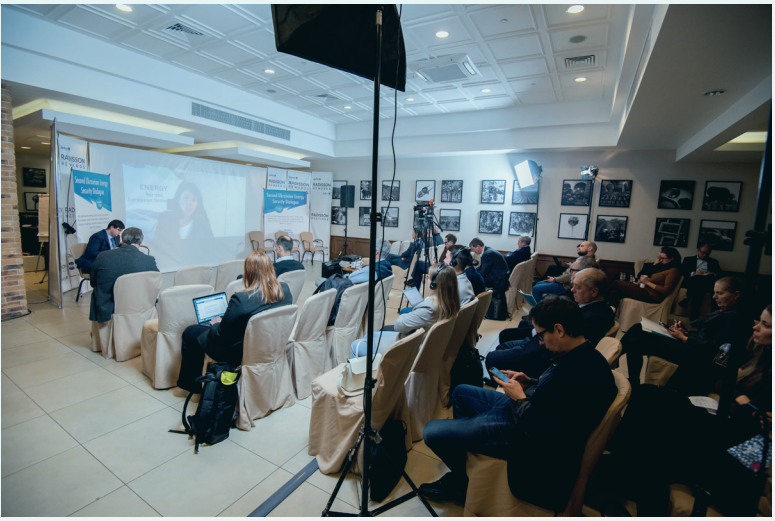
Ensuring the stability of energy markets and systems

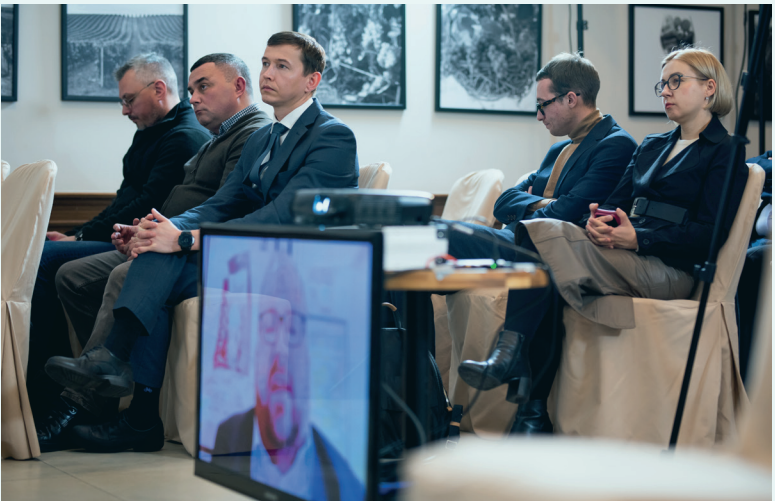
There are legal principles and actions to make Russia pay for the damage caused. The key point is not only a mere breach of international law but a massive extremist breach - the war of aggression with genocidal intention run by a permanent member of the United Nations Security Council. There is an excellent precedent in the Paris Agreement of 1946, defining reparation and allowing the seizing of sovereign assets abroad.

Most of those assets are in London and New York, like commercial property, treasuries, and investment trusts. These are three areas where cash is concentrated, and you cannot move it. So we have them, we can find them.

In addition to asset seizures, you can tax Russian crude. UN General Assembly resolution can be used as a basis, not waiting until the war ends. We have to move for the reparations agreement to be concluded and use the assets of oligarchs connected to the states; plus, you have oil and gas revenues. Then you set up a fund and international compensation commission for Ukraine, which would pay for immediate needs and reconstruction. The reparations agreement has to be pushed further by the Ukrainian government.







Suriya JAYANTI
Senior Fellow, Atlantic Council, Managing director of Eney, a US-Ukrainian decarbonization company

Options for dealing with the energy crisis in the EU

The more focused and organized Ukraine will be on U.S. support, the better. It would streamline support from the U.S. government and private sector and speed it up. Firstly you need to come to agreement internally, as I've seen six ways of approaching by the Ukrainian energy sector representatives of deconflicting different requests and emergencies.

The second thing is triage. The third - you should focuse on Ukraine's competitive advantages as a potential clean energy hub for Europe. In the nuclear sector, think not only of short-term priorities but also of long-term investment options. Such focuses would help U.S. stakeholders to plan future budget cycles.

Finally, know your audience. There is an element one would call 'Ukraine fatigue' as other concerns have come up. The more Ukraine can comply with anticorruption and oversight provisions, the better. Ukrainian energy security is Europe's and U.S. security.

Dr. Martin JIRUSEK
Researcher, Department of International Relations and European Studies, Masaryk University

Changes and challenges in the EU external energy policy

Now Europe is facing a supply crisis, with at least two timelines – one in weeks and months and the next heating season. The EU seems to have managed from an immediate perspective, but the challenge would be next season. We are removing dependence not only on Russian energy but also on imported hydrocarbons.

What's next? Currently, storages are over 90% due to higher efficiency in consumption and higher LNG supplies. What about next winter? An important indicator is the level of

storage. Also, new LNG terminals will become available even this winter.

There is a strong need for energy and foreign policy coordination, which was insufficient in the past. The EU has to be united in its energy policy, coordination is crucial.

Inna SOVSUN
Member Of Parliament, Verkhovna Rada Committee on Energy, Housing and Utilities Services

Priority steps to overcome the energy crisis in Ukraine

While we are discussing current needs, we shall also speak of the future. For Ukraine, the problem is that we need to think of next winter. Otherwise, we will be stuck in the idea of surviving the current winter. It's always been the question in government sessions - we were not thinking of winters five years ahead. Resilience is not only about infrastructure; it is also about smart policy.

First, we should get rid of inconsistencies. Lack of corporate governance reform, cross-subsidization, and lack of correct incentives are bad policies. Those inefficiencies are our vulnerabilities, leading to crises.

The second issue is smart planning which is missing in Ukraine's energy policy today. Are we building 6-8 big nuclear reactors or SMRs? This puzzles investors. More transparent, smart planning is needed to plan human and financial resources. Of course, no one knows the consumption, but at least we shall have different scenarios.

The third issue is that if we want investments, we must deal with 'Ukrainian specificities' in regulation. It's not about getting rid of all the rules but helping businesses rebuild the sector. We should recognize the problem and provide the support needed. It would help to set the right conditions.

Serhiy SUKHOMLYN
Mayor of Zhytomyr

Energy resilience at the level of communities and cities. Case studies of Zhytomyr and Mykolaiv regions

Back in 2014, we realized that energy carriers are also weapons. That is why we have adopted a strategy to reduce emissions by 40% by 2030. In 2018, we reduced them by 20%; we were the first city in Ukraine to sign an agreement on the transition to 100% RES. In particular, we were the first in Ukraine to completely convert the city to LED, and now this system allows us to turn off the lights. Now the lighting of the whole town is 240 kW, which is very little.

Another major project implemented jointly with the World Bank is the modernization of the water supply and the supply of generators for autonomous energy supply. For instance, at the sewage station, consumption was reduced from 2 MW to 800 kW. It allows us to work in emergency mode to supply water at least hourly.

We are implementing several projects to replace natural gas, the goal of which is to reduce consumption by 80% by 2030. A wood-fired CHP was launched for the entire neighborhood, which ensures system stability and cheaper heat. Since the spring, four more wood boilers have been built, which will maintain the network's temperature when the gas is turned off. Except for three boiler houses in the city are connected. For example, on average, 10 out of 40 boiler rooms do not work during outages, but the system works stably. We are also starting a big project with Naftogaz - CHP on wood. After the project is implemented, we will produce only 7-8 mcm of gas in peak periods. Regarding thermal modernization of buildings, practically all donor projects are working, which allows for reducing energy consumption.

Zhytomyr's portfolio with international partners is EUR 63 million (loans) and EUR 24.7 million (grants).

High-power generators and transformers are good things. However, the country cannot run on generators. We need air defense systems, planes, and tanks.

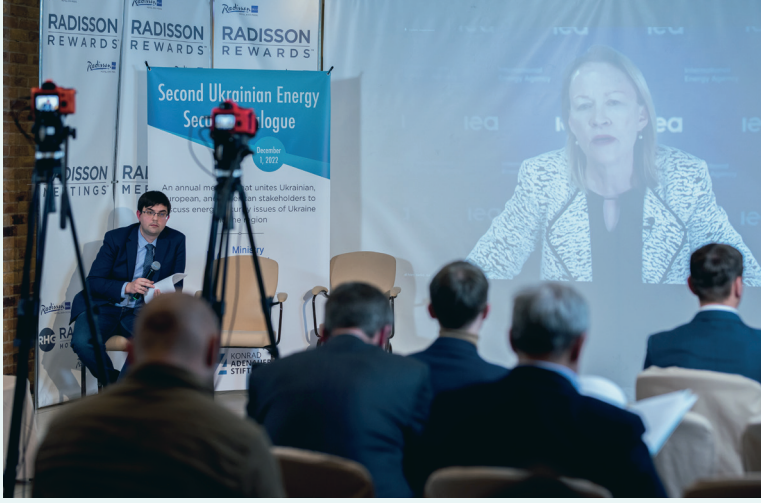
Oleksandr SIENKEVYCH
Mayor of Mykolaiv

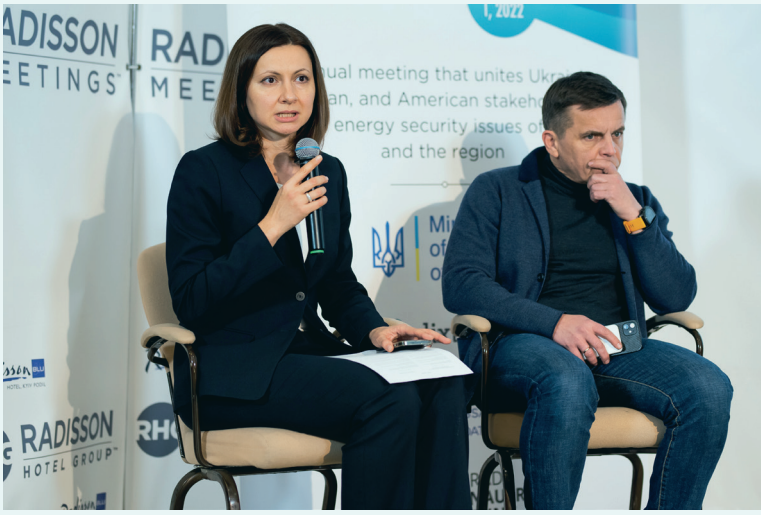
Energy resilience at the level of communities and cities. Case studies of Zhytomyr and Mykolaiv regions

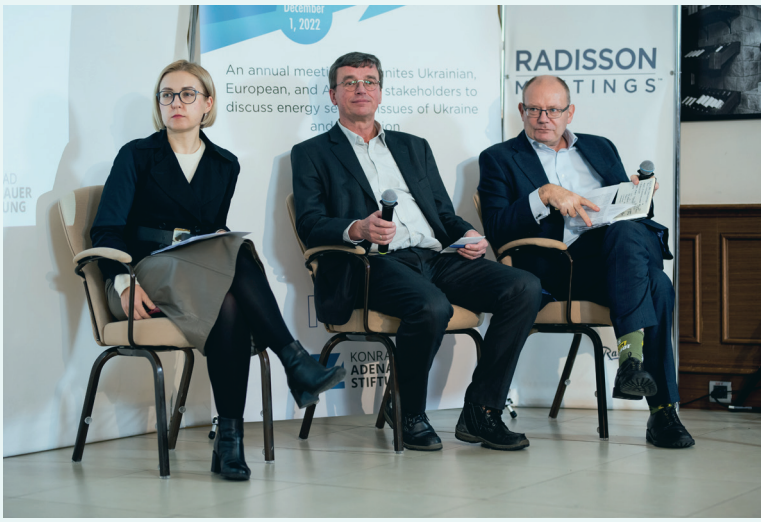
Mykolaiv was not bombarded for only 44 days, 156 civilians were killed, and 703 were wounded from the almost daily shelling. Eight hundred seventy-four apartment buildings out of nearly 3,300 were damaged. The main problem is the destruction of the water pipeline that supplies the city with water. Since April 12, there has been no centralized water supply in the town; in a month, we built a pipe to take water from the Yuzhny Bug. This water is saltier. We purify the water from bacteria but cannot affect the salinity and softness, so it is technical. We get drinking water from artesian wells, which have begun to be drilled and equipped with purification plants. Due to salt water, we have 20 times more leaks in pipes subject to corrosion. Separate artesian wells began to be drilled for heat supply installations.

After the war, it is necessary to raise the issue of transferring heat supply enterprises to the balance of local communities. Recently, there has been talk about moving the CHP to privatization, but generation, not heat supply, will be interesting for the investor. 20% less gas is consumed thanks to the modernization of Mykolaivvoblteploenergo boiler houses (World Bank project). Some boiler houses were destroyed, and we repaired them in the mode of «operations on a working heart».

The primary needs are water treatment systems, diesel generators, repair materials and tools, special municipal equipment, and public transport.







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