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# FOREWORD FROM THE EDITOR



EUROPEAN  
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Despite the complex and evolving global landscape, the ENERPO Research Center remains steadfast in its commitment to advancing energy research and promoting a sustainable future. We are delighted to share a glimpse of the exciting developments and initiatives we have undertaken in recent months.

As such, ENERPO continues to strengthen its research in corporate governance, hosting an ESG webinar in February 2024, titled “System of Corporate Governance: Constants and Variables”, in collaboration with the Moscow Exchange<sup>1</sup>. This event facilitated critical discussions on key aspects of corporate governance within the current context.

In June 2024, we celebrated the launch of our latest publication, “Russian Coal in the Era of Climate Change”, at the UN Global Compact Network in Russia’s venue<sup>2</sup>. This insightful book, authored by our esteemed experts Nikita Lomagin, Irina Mironova, Maxim Titov and Michael Oshchepkov and published by Palgrave Macmillan in 2023<sup>3</sup>, offers a comprehensive analysis of the Russian coal industry.

Additionally, Olga Teplova, Head of the Sustainable Development Department at RC ENERPO, collaborated with colleagues from the Higher School of Economics, publishing an article in *Frontiers in Environmental Science*<sup>4</sup>. This research explores the link between the financial performance of energy companies, their carbon footprint and the patents for renewable energy technologies.

Beyond our publications, ENERPO actively participates in diverse initiatives. We contributed significantly to the work of the experts preparing the analytical report on the implementation of strategic climate research-related initiatives in Russia’s science and technology sphere. This engagement underscores our dedication to contributing to the broader scientific landscape in Russia.

In August 2024, Michael Oshchepkov, Researcher at RC ENERPO, participated in the VI International Municipal BRICS+ Forum in Moscow, where he presented a compelling discussion on the carbon neutrality of the SCO countries<sup>5</sup>. In this

<sup>1</sup> “ESG Webinar ‘System of Corporate Governance: Constants and Variables’”, MOEX, published February 8, 2024, <https://www.moex.com/e17938>.

<sup>2</sup> “A Discussion Took Place at the UN Global Compact Network in Russia...”, European University at St. Petersburg, published June 25, 2024, <https://eusp.org/news/na-ploschadke-nacionalnoy-seti-globalnogo-dogovora-oon-v-rossii-sostoyalos-obsuzhdenie-itogov-issledovaniya-ic-enerpo>.

<sup>3</sup> *The book is available on the website*: <https://link.springer.com/book/10.1007/978-981-99-5370-7>.

<sup>4</sup> “A Joint Article by Olga Teplova and Colleagues from the Higher School of Economics...”, European University at St. Petersburg, published September 17, 2024, <https://eusp.org/news/opublikovana-sovmestnaya-statya-olgi-teplovoy-i-kolleg-iz-vshe-posvyaschennaya-svyazi-finansovykh-pokazateley-energokompaniy-s-ikh-uglerodnym-profilem-i-patentami-na-vie>.

<sup>5</sup> “VI International Municipal BRICS+ Forum 2024”, ENERPO Journal, published September 18, 2024, <https://enerpojurnal.eusp.org/2024/09/vi-international-municipal-brics-forum-2024/>.



current issue, we are also proud to share a report on the V International Municipal BRICS+ Forum, held in Saint Petersburg on November 9, 2023, where RC ENERPO co-organised a session titled “Future Energy: Alternative Sources for Sustainable Development”.

As we look ahead, we are gearing up for COP29, scheduled for November 2024 in Baku, Azerbaijan, where ENERPO will be prominently present, sharing expertise and knowledge about the Russian coal sector with the international community.

We are also proud to highlight the continuous development of our journal. In 2024, ENERPO Journal launched a redesigned website, fully aligned with the highest standards of scientific publishing. We invite you to visit our new platform at <https://enerpojournaleusp.org/> and experience its user-friendly interface and wealth of information. We are also committed to expanding our archive within the *eLibrary* database, ensuring that our work reaches a broad audience within the Russian scientific community.

This 12th issue features insightful articles, including Liubov Yaroshenko’s examination of COP29 within the context of critical energy transition minerals, Evgeniia Kirillova’s analysis of using co-optimisation modeling solutions for interconnected energy markets, as well as Michael Oshchepkov’s discussion on the perspectives of carbon markets integration.

We continue our tradition of interviews with special focus on professional development, introduced in the previous issue, showcasing an interview with Dmitry Vasilenko, Vice-Rector at Saint Petersburg State University of Economics, discussing the concept, history and people behind the “Energetika XXI” conference, and an interview with Pal Dunay, Interim Director of the OSCE Academy in Bishkek, emphasising the vital role of education in promoting regional development. Additionally, we had the privilege of speaking with Branko Milicevic, a leading expert on energy transition and hydrogen at the United Nations Economic Commission for Europe (UNECE), on the topic of low-emission hydrogen.

We are also pleased to remind readers that applications are open for the ENERPO educational program, which is part of the European University at St. Petersburg’s International Relations division focusing on the study of global energy policy and the energy transition. For more information about the program, please visit the website: <https://enerpo.eusp.org/>.

As always, we extend our heartfelt gratitude to our loyal readers. We eagerly await your feedback and welcome new authors and peer reviewers who share our passion for advancing energy research and dialogue.

***Anastasiya Oshchepkova***

# LOW-EMISSION HYDROGEN ON THE BACKGROUND OF “CARBON CURTAIN”

DOI: 10.33280/eusp.org.2024.61.79.001

Interview with **Branko Milicevic**  
Held by **Anastasiya Oshchepkova** and **Irina Mironova**



## Abstract:

In this interview, we speak with Mr Branko Milicevic, a leading expert on energy transition and hydrogen at the United Nations Economic Commission for Europe (UNECE). As a Secretary of the Group of Experts on Gas and of the UNECE Hydrogen Task Force, Mr Milicevic offers invaluable insights into the crucial role hydrogen will play in shaping the future energy system. We delve into the critical role of sustainable hydrogen in facilitating the energy transition and discuss the impactful work of the UNECE Hydrogen Task Force in promoting hydrogen as a viable and essential component of a cleaner, more sustainable energy future.

**Keywords:** “carbon curtain”, decarbonisation, hydrogen economy, low-emission hydrogen, UNECE Committee on Sustainable Energy, UNECE Hydrogen Task Force

## Водород с низким углеродным следом на фоне «углеродного занавеса»

**Аннотация:** В этом интервью мы поговорили с Бранко Миличевичем, ведущим экспертом Европейской экономической комиссии ООН (ЕЭК ООН) по энергетическому переходу и водороду. Будучи секретарём Группы экспертов ООН по газу и Рабочей группы ЕЭК ООН по водороду, Бранко Миличевич поделился своим мнением о роли водорода в формировании энергетической системы будущего. Мы подробно обсудили важность водорода с низким углеродным следом для энергетического перехода, а также деятельность Рабочей группы ЕЭК ООН по водороду в контексте продвижения водорода как важного компонента устойчивого энергетического будущего.

ООН по водороду, Бранко Миличевич поделился своим мнением о роли водорода в формировании энергетической системы будущего. Мы подробно обсудили важность водорода с низким углеродным следом для энергетического перехода, а также деятельность Рабочей группы ЕЭК ООН по водороду в контексте продвижения водорода как важного компонента устойчивого энергетического будущего.

**Ключевые слова:** водород с низким углеродным следом, водородная экономика, декарбонизация, ЕЭК ООН, Комитет ЕЭК ООН по устойчивой энергетике, Рабочая группа ЕЭК ООН по водороду, «углеродный занавес»

**ENERPO Journal:** *Today we are glad to welcome Mr Branko Milicevic, Secretary of the Group of Experts on Gas and of the UNECE Hydrogen Task Force at the United Nations Economic Commission for Europe (Sustainable Energy Division). Our first question concerns the scope of the UNECE Hydrogen Task Force's work. Why was this group of experts created? What are its ultimate goals and current initiatives?*

**Branko Milicevic:** The UNECE Hydrogen Task Force was formally launched in June 2023, in response to the request by the UNECE Committee on Sustainable Energy. The Committee noted the importance of defining criteria for low-emission hydrogen that strike a balance between the emissions associated with its production and the sufficient flexibility needed to scale-up a nascent industry. Our Hydrogen Task

Force supports ongoing policy dialogue on hydrogen projects, classification and development of the full value chain.

The Task Force is just one of many hydrogen initiatives and mechanisms in Europe. Its goal is not to duplicate already existing initiatives, but to complement the ongoing efforts, by exploring whether and how our United Nations Framework Classification for Resources (UNFC) and the United Nations Resource Management System (UNRMS) could be applied to hydrogen projects, and by serving to all non-UN actors as a gateway to the UN family of organisations (the Economic and Social Council, other Regional Commissions, UNEP, UNDP, etc.).

Since 1974 – that is, in the past 50 years – we have witnessed several hydrogen booms and busts. For example, the hydrogen boom of early 2000s focused on the use of hydrogen in fuel cells, to generate electricity, or develop hydrogen-powered cars. It has been more than 20 years since, and it has not materialised at scale.

Lately we focus on hydrogen in the hard-to-abate sectors, such as steel, ammonia, or cement production, where hydrogen is used as a feedstock (and not as much as an energy carrier).

**ENERPO:** *Could you please clarify for our readers, what is the difference between energy carriers and feedstocks?*

**Branko:** An energy carrier, or a vector, is anything that contains energy and can be used to transport it. For instance, gasoline, petrol, diesel, coal, natural gas are all energy carriers. You burn them, get heat, and then convert this heat into other forms of energy, say, electrical energy in a power plant. From this heat you get mechanical movement of turbines, and from mechanical movement you get electric energy. This is how power plants operate. In this case, natural gas or coal are energy carriers.

On the other hand, hydrogen and natural gas can be used as feedstocks in the chemical industry. For instance, to produce ammonia – and from ammonia fertilisers, such as ammonium nitrate and other chemicals – one needs hydrogen as a feedstock. Hydrogen stays in the product; it is not emitted in the form of water if you burn it. The current hydrogen story is about feedstocks.

**ENERPO:** *Speaking about today's hydrogen boom, can we say that the energy transition agenda makes a difference and somehow influences this "wave"?*

**Branko:** Now the focus is on how the use of hydrogen in hard-to-abate sectors can help achieve the energy transition. Before, we talked mostly about electricity production from stationary and mobile fuel cells, even about the use of hydrogen fuel cells in mobile phones; however, hydrogen lost that battle against lithium-ion batteries.

Following the Paris Agreement and the efforts to reach net zero emissions, the focus turned to the so-called hard-to-

abate sectors, that is, to all the industries that use chemicals to reduce, for example, iron oxide into iron. This is not combustion but reduction – carbon takes oxygen away from iron, and carbon dioxide is emitted. If hydrogen is used as a reducing agent, there are much less carbon dioxide emissions. The same applies to cement, ammonia and some other sectors.

However, the problem is that hydrogen is not a typical energy source. It is not a source; it is a manufactured good. There is no hydrogen in nature, in its molecular form. For all practical purposes, hydrogen exists in the form of its compounds, such as water or hydrocarbons, from which it is produced – either via electrolysis of water or steam reforming of hydrocarbons, primarily methane.

**ENERPO:** *It is interesting you said that hydrogen does not exist in nature. And what about "hydrogen economy" as one of the main focuses of the UNECE and Hydrogen Task Force? Today many see it as a key solution for a sustainable energy future. But what does the concept of a "hydrogen economy" practically entail?*

**Branko:** The "hydrogen economy" refers to a system where hydrogen takes the place of hydrocarbons by serving as both an energy carrier and an industrial feedstock, as we progressively decarbonise the economy towards reaching net zero. The concept was born in 1974 when the Hydrogen Energy Society was launched. Prof Nejat Veziroglu was its Chair, and he coined the expression. There have been many ups and downs since then, but a hydrogen economy is yet to materialise.

**ENERPO:** *Hydrogen is a key player in the sustainable energy landscape, offering an alternative to traditional fossil fuels. Could you elaborate on the different types of hydrogen and how they vary in terms of production and carbon footprint? Which type of hydrogen can be labelled as "sustainable" and has the most potential?*

**Branko:** I do not think there are different types of hydrogen. There is one and only hydrogen molecule, and its production, transport, storage and use – could result in various greenhouse gas emissions and other environmental and social impacts. It is difficult to say what a label "sustainable" could mean. We at UNECE refrain from using qualifiers such as sustainable, green, blue, grey, etc.; we prefer "low-emission" hydrogen. In our work, we are trying to develop a classification for hydrogen that goes beyond colours, one that would address the full life cycle of hydrogen production and transport.

**ENERPO:** *Green or, as you call it, "low-emission" hydrogen is gaining prominence due to its minimal carbon emissions. Last year, BloombergNEF published a report<sup>1</sup> claiming that this type of*

<sup>1</sup> "2023 Hydrogen Levelized Cost Update: Green Beats Gray", BloombergNEF, published July 25, 2023, <https://about.bnef.com/blog/2023-hydrogen-levelized-cost-update-green-beats-gray/>.

*hydrogen will become competitive with existing gray H2 plants by 2030. Do you consider this outlook well-grounded? Is there a trend toward scaling up sustainable hydrogen production and distribution?*

**Branko:** Yes, there is certainly a trend toward scaling up low-emission hydrogen production and use, with many announcements lately. In our recent publication “Towards a Hydrogen Economy in the UNECE Region”<sup>2</sup>, we noted that in the past two years, numerous supportive policies have been implemented, and numerous low-emission hydrogen projects have been announced, both in the UNECE region and beyond. Yet, according to the International Energy Agency, a mere 4% of these projects have reached a final investment decision, while low-emission hydrogen still constitutes less than 1% of overall hydrogen production and use.

Achieving the scale and pace of hydrogen deployment necessary to bridge the gap between the current status quo and our climate objectives requires more decisive actions from policymakers and the emerging hydrogen industry.

**ENERPO:** *In November 2023, you participated in a discussion on future energy at the V International Municipal BRICS+ Forum in Saint Petersburg<sup>3</sup>. One key message from this panel was that, given the challenges associated with hydrogen, natural gas remains the real energy resource of the future. Do you agree with this opinion? Can hydrogen emerge as a winner in the inter-fuel competition?*

**Branko:** Natural gas and hydrogen are not necessarily competitors. Our view is that we will continue to rely on gaseous energy carriers and feedstocks, as well as their infrastructure – pipes, compressors, storage, etc. – needed to contain and manage them. Our goal is to progressively decarbonise what is in the pipe. This can be done by harnessing synergies between hydrogen, natural gas, biogas and other gases.

When it comes to an end use of energy, we want to electrify everything that can be electrified. For instance, we replace a petrol-fuelled car with an electric one. But there are sectors that cannot be cheaply or easily electrified. In hard-to-abate sectors, in principle, you can produce steel like you produce aluminium, that is, via electrolysis, but it may be cost prohibitive. We talk about millions of tons of steel for low-tech applications to build homes, roads and bridges. Technically, it can be done, but it is simply too expensive.

**ENERPO:** *This brings us to the issue of financing. The hydrogen endeavour necessitates substantial investment, with the*

<sup>2</sup> Daria Nochevnik, Andrei Tchouvelev, and Branko Milicevic, *Towards a Hydrogen Economy in the UNECE Region*, ECE Energy Series No. 79 (Geneva: United Nations, 2023), [https://unece.org/sites/default/files/2024-03/ECE\\_ENERGY\\_151.pdf](https://unece.org/sites/default/files/2024-03/ECE_ENERGY_151.pdf).

<sup>3</sup> Anastasiya Oshchepkova. “V International Municipal BRICS+ Forum 2023. Future Energy: Alternative Sources for Sustainable Development”, *ENERPO Journal*, November 26, 2023, <https://enerpojournals.eusp.org/2023/11/v-international-municipal-brics-forum-2023/>.

*IEA estimating a requirement of approximately \$15 trillion by 2050<sup>4</sup>. Is this volume of investment even feasible?*

**Branko:** Before I answer, let me just explain certain differences in metrics we use. Often when we talk about hydrogen production, we refer to either electrolyser capacity (in Watts installed) or the quantity (kg of hydrogen produced per year).

To convert between these two metrics, we should make some assumptions on electrolyser efficiency and utilisation, but the rule of thumb is: for each kg of hydrogen produced, one needs a 10W-electrolyser, and have it on for a year. If the current cost of electrolysers is, say, several \$US per Watt, it means that to produce one million ton of hydrogen we would need 10GW installed that cost \$30–50 billion.

However, the real problem is not the cost to build electrolysers and other equipment needed to produce hydrogen. The real problem is that the demand is low. For this reason, in June this year we held a webinar on demand creation<sup>5</sup>. We felt that the discrepancy between projected demand of low-emission hydrogen slows down the development of the hydrogen value chain. We noted that the unwillingness of end-users to embrace hydrogen as a feedstock reflected their anxiety about costs, technological challenges, risks and their perception, regulatory environment, and geopolitical uncertainties. This is a problem we still need to address.

**ENERPO:** *What can be done, in your opinion, to make hydrogen a business case? Is it possible now or in the near future?*

**Branko:** In the discussion about hydrogen today, there are too many proponents and opponents, with rather firm views of what and how should be done. In my view, we need to make more informed decisions based on good science and reliable technical and economic data. We should avoid confirmation biases that sometimes dominate the narrative and drive or prevent action and innovation.

**ENERPO:** *Let us shift our focus to the international arena. Do the current geopolitical tensions, such as an “iron curtain” between East and West as a result of the conflict between Russia and Ukraine, influence hydrogen development agenda?*

**Branko:** I won’t comment on that, yet one could imagine a “carbon curtain”, such as the EU’s Carbon Border Adjustment Mechanism, to emerge between those who embrace decarbonisation and those who do not. The hydrogen development agenda could be hugely impacted by such a curtain.

**ENERPO:** *That is an excellent expression, and we will certainly highlight it in the interview! To conclude, it would be insightful to gain a broader perspective on your vision and potential chal-*

<sup>4</sup> Nina Chestney, “\$15 Trillion Global Hydrogen Investment Needed to 2050-research”, *Reuters*, April 27, 2021, <https://www.reuters.com/business/energy/15-trillion-global-hydrogen-investment-needed-2050-research-2021-04-26/>.

<sup>5</sup> “Opportunities for Hydrogen Demand Creation in Hard-to-abate Industry”, UNECE, published 2024, <https://unece.org/info/events/event/391474>.



*lenges regarding hydrogen as part of the future energy system. Looking ahead, what are your biggest concerns about the future of sustainable hydrogen?*

**Branko:** I have two concerns. The first is whether the business case for hydrogen as an agent of decarbonisation is built on sound foundations on a truly global scale. I do not know the answer to this. Yet, if the answer is yes, my second concern is that the whole concept might nevertheless fail to materialise, or gain traction, because the world is a complicated place with too many distractions and competing priorities. The energy transition requires a persistent effort and policy action over decades, yet due to our political cycle that operates on shorter timescales – typically 3 to 4 years – there is a risk we fail to see the big picture, and lose focus, momentum and time. But I do hope this will not happen.

**ENERPO:** *We hope for this as well. Thank you, Branko, for sharing your insights. Your perspective is invaluable for our readers to understand the crucial role of hydrogen in shaping a more sustainable future.*

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#### **About Branko Milicevic**

Branko Milicevic is the secretary of the Group of Experts on Gas and of the Hydrogen Task Force of the United Nations Economic Commission for Europe (UNECE) in Geneva. Prior to joining UNECE, Branko worked at the United Nations headquarters in New York, in the Department of Economic and Social Affairs, where he was responsible for the indicators of sustainable development, and energy and environment statistics. A chemical engineer by training, he was also involved in development and commercialisation of hydrogen fuels cells in the United States.

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# ON THE PATH TO COP29: ISSUES WITH CRITICAL ENERGY TRANSITION MINERALS

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Viewpoint by *Liubov Yaroshenko*

“A world powered by renewables is a world hungry for critical minerals”,  
UN Secretary-General António Guterres

## Abstract:

Delivering the decarbonisation needed for the Paris Agreement depends not only on easy access to technologies but also on the availability of the necessary resources for a green transition. At COP28, UN Secretary-General António Guterres underlined that “the extraction of critical minerals for the clean energy revolution – from wind farms to solar panels and battery manufacturing – must be done in a sustainable, fair and just way”. The UN Chief proposed the Panel on Critical Energy Transition Minerals for the first time in the history of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change to discuss and set up common and voluntary guiding principles for extractive industries.

This viewpoint examines how the theme – “global guidance to manage the critical resources for energy in a sustainable, fair and just way” – will evolve under the auspices of COP29 Presidency. What are the positions of the industrialised countries on ensuring a sustainable supply of critical minerals for the low-carbon energy transition ahead of COP29? Why and to what degree might those positions be different from developing countries and where do they coincide? How might those differences and commonalities influence the outcomes of COP29?

**Keywords:** COP28, COP29, critical minerals, energy transition, just and fair transition, UN Panel on Critical Energy Transition Minerals, value-added supply chains

## На пути к COP29: проблемы с минералами, критически важными с точки зрения энергетического перехода

**Аннотация:** Обеспечение декарбонизации, необходимой для реализации Парижского соглашения, зависит не только от доступа к технологиям, но и от наличия необходимых ресурсов для перехода к «зелёной» экономике. На COP28 Генеральный секретарь ООН Антониу Гутерриш подчеркнул, что «добыча критически важных минералов для революции в области чистой энергии – для ветряных электростанций, солнечных панелей и аккумуляторов – должна осуществляться устойчивым и справедливым образом». Глава ООН впервые в истории Конференции сторон (COP) Рамочной конвенции Организации Объединённых Наций об изменении климата предложил создание Группы экспертов по критически важным для энергетического перехода минералам с целью обсуждения и разработки универсальных и добровольных руководящих принципов для добывающих отраслей.

В настоящей статье рассматривается, как данная тема – «глобальное руководство по управлению критически важными ресурсами для энергетики устойчивым и справедливым образом» – будет развиваться под эгидой COP29. Каковы позиции промышленно развитых стран по обеспечению устойчивых поставок критически важных минералов для перехода к низкоуглеродной энергетике в преддверии COP29? Почему и в какой степени эти позиции могут отличаться от позиций развивающихся стран и где они совпадают? Как эти различия и сходства могут повлиять на результаты COP29?

**Ключевые слова:** COP28, COP29, Группа экспертов ООН по критически важным минералам для энергетического перехода, критически важные минералы, цепочки поставок с добавленной стоимостью, устойчивый и справедливый переход, энергетический переход

An energy system powered by clean energy technologies appears to be a key element to limiting global warming to 1.5 degrees Celsius. The essential components of the system are critical energy transition minerals such as copper, lithi-

um, nickel, cobalt, manganese, graphite and rare earth elements. Every clean technology from wind turbines and solar PV plants to electric vehicles and battery storage requires a sufficient, reliable and affordable supply of those minerals.

The importance of critical minerals in a decarbonising energy system has arisen in the policy agenda of many governments and international formats in recent years. One sees IRENA with its first Collaborative Framework on Critical Minerals for Energy Transition<sup>1</sup> established in 2022; IEA with its inaugural Critical Minerals Review 2023<sup>2</sup> and the first ever-international summit on critical minerals; UNECE with its inaugural 2024 guidebook on critical minerals for sustainable energy transition<sup>3</sup>, and many others.

The fact that UN Secretary-General António Guterres proposed the Panel on Critical Energy Transition Minerals for the first time in the history of the Conference of the Parties (COP) – the formal meeting of the UN Framework Convention on Climate Change parties – in Dubai at COP28 made the issue truly global. The UN has recognised that delivering decarbonisation needed for the Paris Agreement depends not only on easy access to technologies but also on the availability of the necessary resources for a green transition.

It seemed that world leaders agreed that the UN should act as a neutral broker to discuss and set up common and voluntary guiding principles for extractive industries and ultimately to ensure a sustainable expansion of critical minerals supply chains. However, the final decisions of COP28 regarding climate technology transfer such as *Decision 9/CP.28 “Enhancing Climate Technology Development and Transfer through the Technology Mechanism”*<sup>4</sup> and *Decision 10/CP.28 “Linkages between the Technology Mechanism and the Financial Mechanism”*<sup>5</sup> did not have any official reference to the support and investment into sustainable critical minerals supply chains as a base for the spread of green technologies. This makes any rhetoric, statements and announcements less viable and consistent in a long-term perspective.

In the Letter to Parties and Constituencies ahead of COP29<sup>6</sup>, H.E. Mukhtar Babayev, COP29 President-Designate, underlined the two pillars of the COP29 Vision such as enhancing ambition and enabling action and pathways to deliver those

pillars through the New Collective Quantified Goal on Climate Finance, Article 6, workable Loss and Damage Fund, updated Nationally Determined Contributions, National Adaptation Plans and other instruments. The omission of critical mineral issues in the official COP29 agenda was somewhat predictable since this is still an area where there is an enormous need for convergence on mutual interests between developed and developing countries.

The main idea of UN Secretary-General António Guterres’ statement at COP28 was that “the extraction of critical minerals for the clean energy revolution – from wind farms to solar panels and battery manufacturing – must be done in a *sustainable, fair and just way*.”<sup>7</sup> The way various stakeholders define “*sustainable, fair and just*” will be a new issue about which developed and developing nations would have to come to terms in the nearest future.

So far, COP29 Presidency contributed to this discussion within its capabilities and powers by convening two High-Level Energy Transition Dialogues in May 2024 and in June 2024. Those dialogues aimed at discussing how to achieve the energy pledges from COP28, part of what is known as the UAE Consensus, including the 2030 commitments to triple global renewable power capacity, double energy efficiency improvements, etc., where critical minerals have become only accompanying but not the priority topic. The issue was raised<sup>8</sup> by H.E. Dr Amani Abou-Zeid, African Union Commissioner for Infrastructure and Energy, and the theme was presented as the environmentally harmful extraction conditions that prevail on the African Continent.

UN Trade and Development has long been proving through its research that “Africa’s vast deposits of minerals critical to the global energy transition, such as cobalt, copper and lithium, can power a sustainable energy future.”<sup>9</sup> However, no one can see a country from Africa or Latin America playing a major role in manufacturing or trading cathodes or battery materials. There are numerous calls for developing countries to fully capitalise on their mineral wealth, but they remain low in the value chains.

“*Fair and just*” means transitioning away from the systematic exploitation of developing countries embodied in the production of basic raw materials. In practical terms, it appears to mean educating the workforce, creating jobs, diversifying economies, and boosting revenues based on processing and refining critical minerals rather than supplying a raw basis to other technological centers.

<sup>1</sup> “IRENA Members Pave Way for New Cooperation on Critical Materials”, International Renewable Energy Agency (IRENA), published March 22, 2022, <https://www.irena.org/news/articles/2022/Mar/IRENA-Members-Pave-Way-for-New-Cooperation-on-Critical-Materials>.

<sup>2</sup> “Critical Minerals Market Sees Unprecedented Growth as Clean Energy Demand Drives Strong Increase in Investment”, International Energy Agency, published July 11, 2023, <https://www.iea.org/news/critical-minerals-market-sees-unprecedented-growth-as-clean-energy-demand-drives-strong-increase-in-investment>.

<sup>3</sup> UNECE, Critical Minerals for the Sustainable Energy Transition. A Guidebook to Support Intergenerational Action (Geneva: UNECE, 2024), <https://unece.org/sites/default/files/2024-04/RMYMG%20-%20Critical%20Minerals%20for%20Sustainable%20Energy%20Transition%20-%20A%20Guidebook%20to%20support%20Intergenerational%20Action.pdf>.

<sup>4</sup> United Nations, “Report of the Conference of the Parties on its Twenty-Eighth Session, Held in the United Arab Emirates from 30 November to 13 December 2023”, 2023, United Nations, p. 44, [https://unfccc.int/sites/default/files/resource/cp2023\\_11a01\\_adv.pdf#page=44](https://unfccc.int/sites/default/files/resource/cp2023_11a01_adv.pdf#page=44).

<sup>5</sup> United Nations “Report of the Conference of the Parties on its Twenty-Eighth Session, Held in the United Arab Emirates from 30 November to 13 December 2023”, 2023, p. 2.

<sup>6</sup> Mukhtar Babayev. “Letter to Parties and Constituencies”, COP29 Azerbaijan Operating Company, published July 17, 2024, <https://cop29.az/en/news/letter-to-parties-and-constituencies>.

<sup>7</sup> António Guterres. “Secretary-General’s Remarks to G77+China COP28 Leaders’ Summit [as delivered]”, United Nations, published December 2, 2023, <https://www.un.org/sg/en/content/sg/statement/2023-12-02/secretary-generals-remarks-g77china-cop28-leaders-summit-delivered>.

<sup>8</sup> “COP29 High Level Dialogue: AU Commissioner Highlights Unlocking Finance for Energy in Africa”, African Union, published June 28, 2024, <https://au.int/en/pressreleases/20240628/cop29-high-level-dialogue-au-commissioner-highlights-unlocking-finance-energy>.

<sup>9</sup> Rebeca Grynspan. “UNCTAD’s 60th Anniversary Pre-event: Maximizing Africa’s Potential”, UNCTAD, published June 4, 2024, <https://unctad.org/osgstatement/unctads-60th-anniversary-pre-event-maximizing-africas-potential>.

In this sense, the Democratic Republic of the Congo's experience is often used as a successful showcase of how the country raised the mineral's unit price from \$5.8 per kilogram at extraction to \$16.2 per kilogram<sup>10</sup> after processing. However, it is important to underline that though the majority of mines for cobalt are located in the DRC, DRC-owned companies account for less than 5% of production, according to the International Energy Agency<sup>11</sup>.

The main concerns of the developed countries surrounding the critical minerals have always been about increased demand for these minerals deeply intervening with commodity dependence and exacerbating geopolitical tensions. This dependence covers not only extracting raw materials but also material processing and producing high-tech components by the geopolitical rivals of the developed countries. At the moment, China dominates the downstream battery supply chain, including processing of the battery minerals, cathode and anode material production, and battery cell and EV production. According to IEA<sup>12</sup>, China holds 85% of battery cell production capacity and 90% of cathode and 98% of anode material production capacity globally. Over half of global processing for lithium and cobalt occurs in China. The country dominates the entire graphite anode supply chain end-to-end. China also produces two-thirds of the world's EVs.

At the recent First High-Level Minerals Security Partnership (MSP) Forum<sup>13</sup> launched by the US, EU and other partners, the developed countries in attendance emphasised a dialogue on policies that contribute to diversification and resilience of supply chains together with being committed to high environmental, social and governance standards.

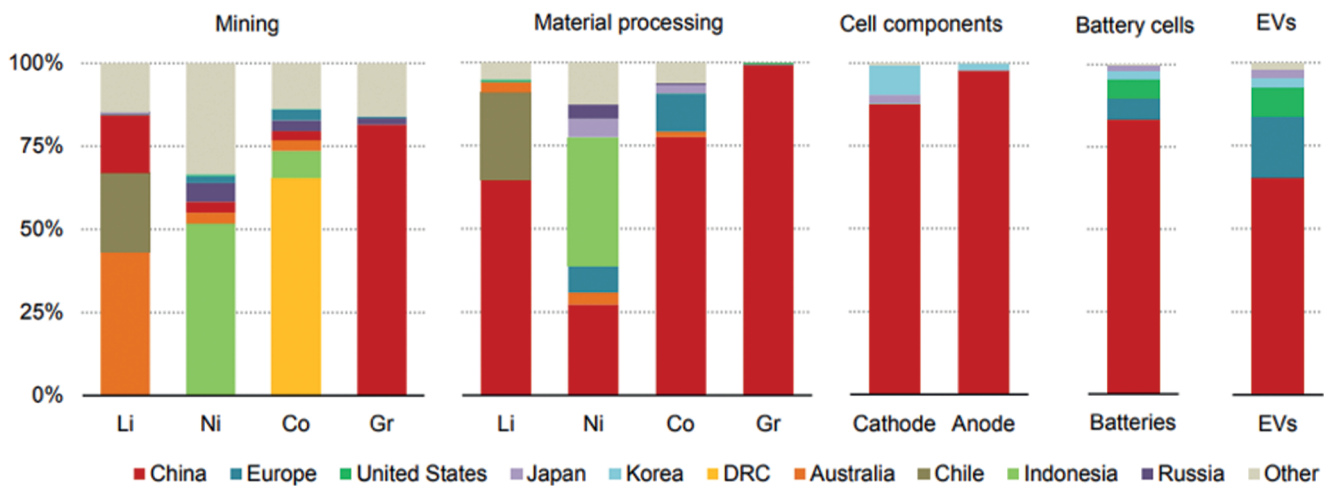
Higher ambition of developing countries to better participate in the value chain of critical minerals processing and refining, combined with local ownership, could change the mapping of the critical minerals market with new geographical allocations of processing and refining sites and bring new aspects to the alignment and harmonisation of existing norms, standards and initiatives in this market.

Ditte Juul Jørgensen, Director-General for Energy of the European Commission and one of the co-chairs of the UN Panel on Critical Energy Transition Minerals, emphasised that this panel would help develop principles "to ensure a fair and transparent approach globally and for local communities in the entire value chain, upholding the highest sustainability and human development standards".<sup>14</sup>

For local communities, all this can become viable only if there is a successful delivery of finance, technology and capacity-building that would enhance the place and the role of

### China dominates the downstream and midstream global EV battery supply chain

Geographical distribution of the global EV battery supply chain, 2023



IEA. CC BY 4.0.

Source: Global Critical Minerals Outlook 2024, International Energy Agency

<sup>10</sup> United Nations Conference on Trade and Development, Technical Note on Critical Minerals. Supply Chains, Trade Flows and Value Addition (Geneva: UNCTAD, 2023), [https://unctad.org/system/files/official-document/ditcmisc2023d1\\_en\\_0.pdf](https://unctad.org/system/files/official-document/ditcmisc2023d1_en_0.pdf).

<sup>11</sup> "Global Critical Minerals Outlook 2024", International Energy Agency, published 2024, <https://iea.blob.core.windows.net/assets/ee01701d-1d5c-4ba8-9df6-abeaac9de99a/GlobalCriticalMineralsOutlook2024.pdf>.

<sup>12</sup> "Global Critical Minerals Outlook 2024", International Energy Agency.

<sup>13</sup> "Statement on the First High-Level Minerals Security Partnership (MSP) Forum Event", European Commission, published July 18, 2024, [https://policy.trade.ec.europa.eu/news/statement-first-high-level-minerals-security-partnership-msp-forum-event-2024-07-18\\_en](https://policy.trade.ec.europa.eu/news/statement-first-high-level-minerals-security-partnership-msp-forum-event-2024-07-18_en).

<sup>14</sup> "UN Secretary-General Appoints Panel on Critical Energy Transition Minerals", United Nations, published April 26, 2024, <https://www.un.org/sg/en/content/sg/personnel-appointments/2024-04-26/critical-energy-transition-minerals-panel>.



the developing countries in the value chain. Developing new mines or processing or refining plants will always require significant amounts of time, capital and technical expertise, and if one speaks about the African continent, Development Finance Institutions (DFIs) would need to reassess risk perceptions and hedge the risks for those ready to unlock the capital. Strengthening the manufacturing capacity in the regions where only a raw material extraction base exists is likely to make processing and refining products more expensive for the end consumers while local communities would definitely get a more just share of the market.

The desire of local markets for “just and fair” critical minerals energy transition is so high, that trying to increase the amount of local value addition, developing countries apply export restrictions on raw critical minerals. In the middle of 2023, Namibia banned the export of lithium ore, and Zimbabwe banned raw lithium exports. Thus, the African countries are forcing the raw materials consumers either to search for new markets to import what they desperately need for the energy transition or to invest into more value-added production chains locally.

The examples prove that one of the stated objectives by UN Secretary-General’s Panel on Critical Energy Transition Minerals – “Ensure countries and local communities endowed with these minerals fully benefit economically, including through local value addition”<sup>15</sup> would certainly need the right policy mix with accessible finance, clear benefits for the private sector and even a change in trade regimes to develop local value addition.

The other objective – “Strengthen international cooperation including through the alignment and harmonisation of existing norms, standards and initiatives and agree on areas for enhanced multilateral action”<sup>16</sup> appears to be more plausible for implementation since a lot of discussions on this matter are already under way. In November 2023<sup>17</sup>, the International Council on Mining and Metals (ICMM), the Copper Mark and the Mining Association of Canada announced the process of consolidating their individual standards into one globally responsible mining standard with a multi-stakeholder oversight system.

In this sense, the UN Panel on Critical Energy Transition Minerals is considered to be the party that acts as a bridge between the developed and developing nations and steer the process to a consensus regarding any normative gap. At the moment, the Panel unites 24 government actors, including countries of the Global South.

COP29 can become the right place to further foster an international and multi-stakeholder dialogue on this matter since diversification and resilience of critical minerals supply chains is one of the factors for tripling global renewable power capacity and COPs themselves are the major world forums for any climate-related discussions. However, so far it is clear that if this dialogue happens at COP29, it would mostly be held at the level of states’ pavilions or UN programs’ booths and would not rise high in the official agenda. Hopefully, the more the issue is mentioned by the high-level stakeholders, the better chances are for the topic to have a more formalised place at further COPs.

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#### **Liubov Yaroshenko**

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<sup>15</sup> “The United Nations Secretary-General’s Panel on Critical Energy Transition Minerals. Terms of Reference”, United Nations, published 2023, [https://www.un.org/sites/un2.un.org/files/terms\\_of\\_reference\\_sgs\\_panel\\_on\\_critical\\_energy\\_transition\\_minerals.pdf](https://www.un.org/sites/un2.un.org/files/terms_of_reference_sgs_panel_on_critical_energy_transition_minerals.pdf).

<sup>16</sup> “The United Nations Secretary-General’s Panel on Critical Energy Transition Minerals. Terms of Reference”, United Nations.

<sup>17</sup> “Collaboration Underway to Develop Consolidated Standard for Responsible Mining”, International Council on Mining and Metals (ICMM), published November 28, 2023, <https://www.icmm.com/en-gb/news/2023/convergence>.

# “BE SMART, AND AGE WON'T MATTER”

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Interview with **Dmitry Vasilenko**  
Held by **Irina Mironova**



## Abstract:

Conferences, in the most general sense, are needed for knowledge exchange, networking, professional development, staying updated, testing your research and receiving feedback from peers, as well as inspiration. Of course, all of this is relevant for conferences in the field of energy research as well. In addition, a conference is a platform for dialogue for various participants of the energy markets, and it is extremely important to preserve dialogue when all channels of communication between Russia and the West are being cut off. We usually imagine a conference as a flow of speakers and topics, but behind every conference there is an idea, a history and people. Today, we will discuss the idea, history and people behind the “Energetika XXI” conference with its organiser and founder Dmitry Vasilenko. Dmitry is the Vice-Rector at the Saint Petersburg State University of Economics (UNECON). The interview was held by Irina Mironova.

**Keywords:** conferences, “Energetika XXI”, knowledge exchange, networking, professional development

## «Думай головой, а возраст не важен»

**Аннотация:** Конференции в самом общем смысле нужны для того, чтобы обмениваться знаниями, расширять сеть знакомств, развиваться профессионально, вдохновляться. Конференции, в том числе и конференции в сфере энергетических исследований, помогают нам оставаться в курсе событий, тестировать результаты своих исследований и получать обратную связь от коллег. Кроме того, конференция – это площадка для диалога между участниками энергетических рынков. Сегодня, когда все каналы коммуникации между Россией и Западом практически перекрыты, крайне важно сохранять оставшиеся возможности для диалога. Конференция «Энергетика XXI» – пример такой возможности. Обычно мы представляем себе конференцию как некий набор спикеров и тем, но важно помнить, что за каждой конференцией стоят люди, идеи и история. Вот об этом мы и поговорили с организатором и основателем «Энергетики» Дмитрием Василенко, проректором Санкт-Петербургского государственного экономического университета. Интервью провела Ирина Миронова.

**Ключевые слова:** конференции, нетворкинг, обмен знаниями, профессиональное развитие, «Энергетика XXI»

**Irina Mironova:** *Today, we are exploring the “Energetika XXI” conference with Dmitry Vasilenko, Vice-Rector of Saint Petersburg State University of Economics. Dima, could you please share with us how it all began? When did the conference start, and what was the initial idea behind it? I understand this conference is your brainchild. How did the concept originate and how was it first brought to life?*

**Dmitry Vasilenko:** The inaugural “Energetika XXI” conference took place in 2008, and by 2023, we celebrated our sixteenth edition. The idea originated during a visit from Mr. Alexey Miller, CEO of Gazprom and our Alumnus ‘84, who has a strong affinity for our university. During one of his annual visits, he posed a question to our rector about organising an energy conference with a distinct economic focus,

unlike the technical conferences prevalent at that time. This conversation, captured in a photo featuring Mr. Miller, Dr. Blekhtsin, Miller's academic advisor, our rector and myself with much more hair, marked the inception.



**UNECON's Rector I. Maksimtsev, Gazprom's CEO A. Miller, Dr. Blekhtsin (A. Miller's Academic Advisor) and D. Vasilenko**

Initially, I was puzzled by my selection to spearhead this effort. The logical explanation lies in my dissertation on the Algerian-Russian gas cartel and my background in international management, making me a suitable choice for running an international conference.

The conference's evolution saw early impractical ideas like hosting it at the palaces and museum premises and university-served meals transition to more pragmatic standards. This included selecting neutral venues with top-tier service in hotels, ensuring impeccable organisation, which became our hallmark.

In its nascent years, the conference attracted a diverse array of participants, from esteemed experts to emerging voices. Over time, it evolved into a more expert-focused gathering.

**Irina: So, does that mean you are a Gazprom conference?**

**Dmitry:** The conference is primarily funded by Gazprom. While other sponsors, such as Lukoil and Integra, have been involved in the past, Gazprom eventually took over the majority of the funding. However, Gazprom does not dictate the conference's topics or speakers. While they have the right to send their main speaker or other representatives, they do not interfere into discussion of topics. This autonomy in planning has been greatly appreciated.

**Irina: How have the conference's themes evolved?**

**Dmitry:** Initially, our focus was on the economics of energy, despite not having a dedicated program at the university. As early as 2008, Gazprom, Integra, and even Lukoil expressed interest in establishing a double degree program with a reputable university. While exploring various options, including Columbia, MIT, Grenoble, Paris Dauphine and Oxford, we expanded our network of contacts, which later influenced the conference's program content and participant selection.

**Irina: Could you tell us more about Ralf Dickel, "Energetika 21" co-organiser? I'm quite interested, having interned under Ralf during my master's studies and later reconnecting professionally when he began visiting St. Petersburg regularly.**

**Dmitry:** I first met Ralf through a series of connections. The renowned expert and professor Manfred Hafner had visited our university multiple times, even before the inception of the "Energetika" conference. Around 2011, he invited us to a major seminar in ERI RAS, where what I call the 'usual suspects' – people who later became regular participants in our conference – were present. There, I met Professor Andrey Konoplyanik. Each year, we extended invitations to Prof. Konoplyanik for "Energetika", and each year, he politely declined. He once again declined my invitation, but suggested someone who might find our conferences interesting. That's how I came to know Ralf Dickel who was concluding his tenure at the Energy Charter.

That was the beginning of a beautiful friendship. Initially, Ralf joined us as a speaker – a common pathway for newcomers in our traditional 'traveling circus'. They observe, integrate, and over time, become regular contributors. We have what I call a 'circle of friends of Energetika' who consistently engage with us. For the first couple of years, Ralf attended as a participant. Then came year 2014, which prompted a significant exodus of experts from our conference. The leading British expert was the first to withdraw, citing impending sanctions affecting those engaged with Russia's energy sector. It was understandable; many other European experts also withdrew at the last moment, despite already having their travel arrangements covered, with reasons ranging from 'I've broken my leg' to 'I've broken my arm', reminiscent of my students' excuses. It was a rather subdued conference with minimal international participation. Subsequently, Gazprom ceased attending European events as a responsive measure. Both me and Ralf were upset about the matter during the event and thus we decided to make "Energetika" great again together. Since 2015, Ralf and I have co-organised the conference.

Mr. James Ball and Mr. Petter Nore later joined us, showing interest in program development and speaker engagement. Over time, our team solidified and continues to operate, albeit with some members preferring to remain behind the scenes. This is how the conference has evolved into its present form.

**Irina: Has the format always been the same?**

**Dmitry:** In 2020, we conceptualized 'Energetika Light', intended for a small gathering of up to forty experts outdoors during the summer, focusing solely on discussion panels tackling current, pressing topics. This encapsulates the conference spirit: open, unrestricted dialogue on pertinent issues.

COVID-19 thwarted these plans, delaying its launch to 2022, although the idea garnered interest from experts.

But in 2022, we did not get to it due to the well-known circumstances.

**Irina:** *How did you approach the conference organisation in 2022?*

**Dmitry:** The immediate challenge was how to proceed given the increasing difficulty of hosting a conference with broad European participation in Russia. We recognised the need to relocate.

**Irina:** *Does Europe remain a primary partner?*

**Dmitry:** Yes, naturally. Given Russia's role as an energy supplier and Europe as the primary buyer, our close connection with Europe is pivotal. By 2022, we deliberated on our next steps, opting not to turn southeast towards China, Southeast Asia, or ASEAN initially. This strategic decision may evolve in the future.

Our discussions with friends of "Energetika" underscored the importance of maintaining cooperation channels, ensuring seamless resumption post-challenges. Energy serves as a key platform for sustaining these dialogues, built over time and delicate to preserve.

**Irina:** *How has the balance between interim seminars and the main conference changed for you? Previously, there were small seminars held between the main conferences, and I participated in them both before the current crisis and after 2022. As a participant, I certainly notice a significant difference between what was in Copenhagen about five years ago and what was happening in Baku or Almaty in 2022–2023. From an organizer's perspective, how has the balance between these seminars and the main conferences changed?*

**Dmitry:** The balance has changed radically. Essentially, all serious matters have been moved outside the main conference.

Regarding the seminars, it depends on what you compare them to. The seminar in Copenhagen was basically an exception; it was one of the most serious ones we did. We had simpler seminars as well, to be straightforward.

The difference here lies more in the host's readiness and partly in academic culture. It is very important that the partner hosting the event wants to utilise the seminar for their benefit. That is a key point. The partner needs to understand very well what they've received as an event, who the audience is, and what should be extracted from the event. In Bishkek, we had great involvement of local partners with clear articulation of research and consulting needs. Therefore, in my opinion, the result was more systemic and impressive. In Almaty, there was significant attention from the audience, especially in February 2023. Many attendees came from engineering circles and small energy companies.

Additionally, we have also changed the themes. Previously, for the plenary session, we took three or four outlooks from different expert centers, they presented them, and we criticised and discussed what did not come true last year. It was a lively and interesting discussion. We also discussed markets, transportation (especially gas transportation), and sales, albeit trying to push geopolitics a bit to the side.

In 2022, we began discussing issues that remain relevant for all countries, regardless of strained relations. These are primarily issues of compliance and implementation of the Paris Agreement and cooperation in areas where it is still possible. We do not refuse to discuss the role of natural gas, but we understand that gas should be discussed in conjunction with hydrogen. In its pure form, natural gas will play its role, but now is not the time to discuss that role.

In 2023, several topics at the conference and seminars drew the most interest from the audience.

The first one is hydrogen, as mentioned. We have been dealing with this topic for the past six years. The first time we brought hydrogen to the conference, people openly laughed at us, saying, "fools, what hydrogen". But each year, it became less trendy and more relevant. Now, everyone wants to deal with hydrogen, even those who should focus on coal. In Central Asia, in particular, this direction is of great interest.

The second topic is the decarbonisation of the transport sector. This is a significant project for us, especially with Gazprom's focus on natural gas as a motor fuel. UNECON is heavily involved in transportation decarbonisation research itself.

The third is the decarbonisation of the heating sector and hence municipal focus. For example, the session you moderated referred to this context. The energy efficiency of buildings and structures is of great interest to the public, especially in Kazakhstan. In Almaty, we had a whole session devoted to municipal heating, with several reports specifically on energy efficiency initiatives. This is a very topical issue for all post-Soviet countries.

In the last two years, we have actively discussed cooperation with Central Asia in a broad sense – Russia and the five countries. Colleagues react extremely sensitively to any mention of problems in their relations. This indicates that these problems exist and that they are painful. Russia will use this region to transfer resources. Transport corridors will be developed through Central Asia to the south or east. In any case, these countries need to change. They can only change together because they have been very interdependent since Soviet times. Practice has shown that division has not led to anything good. I mean, not in a political context of course, but in an energy context – i.e. the disruption of the energy ring.

**Irina:** *What are the key takeaways from the conference held in early December 2023 (the 16th Energetika Conference in St. Petersburg)?*

**Dmitry:** I always start every "Energetika" event with: "We didn't come here to teach you how to live. We bring the best cases, the best practices on the table". Our regular contributors have been addressing various topics from municipal heating to electric vehicles and through the years their presentations have evolved. You can trace how false and good decisions were taken and what consequences they led to. Conferences allow participants to see how others handle



things and try to correct similar situations in their practices. That is the first takeaway.

Secondly, no matter what we are talking about now, international cooperation will be needed. I ask everyone: “Do you believe that international aspects are still important in energy?”. It is absolutely clear that yes, they are important. No matter what projects we’re talking about, everyone will need partners. Some have technologies, others have resources and infrastructure. Whether it is carbon capture, storage or transport, it is expensive to do it alone. Except for maybe Russia or the United States, few can handle all stages of the process by themselves. Others will need international partners. This was not a revelation for me, but it is important in the current context.

**Irina: *We have a lot of young people reading our journal. At least I hope so. What would you say to them?***

**Dmitry:** The idea of our conference has always been that we do not invite big bosses. Our conference brings together experts from the ‘neck’ level. The neck turns the head, you know. So, we are always open to the work of young researchers. If their research meets the conference standards, we fully support their participation.

**Irina: *When you started organising the conference, you had just defended your PhD, right?***

**Dmitry:** Nope! I defended it only two years later. When I started organising the conference, I was still writing my dissertation.

**Irina: *Let me record this for posterity. So, the person who organises a conference that has been around for over 15 years and gathers people from all over the world, contributing to maintaining dialogue between Russia and Europe amid chaos, started this conference four years after finishing university and even before defending a PhD. I guess this would be my message for the young readers of this journal.***

**Dmitry:** Oh, I just came up with a message for organisers of pretty much anything. Every long-running project must have a father or mother. If it is a shared effort between many people, it will never really take off. There should always be someone who constantly thinks about it. There might be two of them. If there is not this person, the long-running story won’t happen. Someone must think and develop, and age does not matter at all. It can be either very young or not very young. I always hear ‘we must give way to the young’. If a person is young and smart, that is good, but if he is just young? Should we give them money for that reason? Honestly, it does not sound right. Be smart, and age doesn’t matter.

**Irina: *We need to grow together with our projects, right?***

**Dmitry:** Yes, I agree with that.

**Irina: *Well, thank you! Much of what we discussed today, you’ve told me before, but now it is all recorded. We can immortalise it!***

**Dmitry:** Thank you!

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#### **About Dmitry Vasilenko**

Dmitry Vasilenko is the Vice-Rector at the Saint Petersburg State University of Economics. He is also an organiser and founder of the “Energetika XXI” conference.

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# V INTERNATIONAL MUNICIPAL BRICS+ FORUM FUTURE ENERGY: ALTERNATIVE SOURCES FOR SUSTAINABLE DEVELOPMENT

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Conference report by *Anastasiya Oshchepkova*



*Participants of the session “Future Energy: Alternative Sources for Sustainable Development” at the V International Municipal BRICS+ Forum in Saint Petersburg (November, 2023)*

## Abstract:

On November 9th, 2023, the ENERPO Research Center at the European University at Saint Petersburg co-organised a session on the sidelines of the V International Municipal BRICS+ Forum in Saint Petersburg. This annual business forum, which is held with the support of the Ministry of Foreign Affairs of the Russian Federation, Federal Agency “Rossotrudnichestvo” and the Government of Saint Petersburg, is aimed at promoting the integration of positive international experience, the development of social and economic municipal territories of emerging countries and strengthening relations between the BRICS countries and other states.

**Keywords:** ENERPO Research Center, future energy, International Municipal BRICS+ Forum, sustainable development

## V Международный Муниципальный форум БРИКС+.

### Энергия будущего: Альтернативные источники для устойчивого развития

**Аннотация:** 9 ноября 2023 года Исследовательский центр ЭНЕРПО Европейского университета в Санкт-Петербурге выступил организатором сессии в рамках V Международного Муниципального форума БРИКС+ в Санкт-Петербурге. Целью этого ежегодного делового форума, который проводится при поддержке Министерства иностранных дел Российской Федерации, Федерального агентства «Россотрудничество» и Правительства Санкт-Петербурга, является содействие интеграции положительного международного опыта,

развитие социального и экономического благосостояния муниципальных территорий развивающихся стран и укрепление отношений между странами БРИКС и другими государствами.

**Ключевые слова:** ИЦ ЭНЕРПО, Международный Муниципальный форум БРИКС+, устойчивое развитие, энергия будущего

In 2023, the forum gathered 7000 representatives of state, business and non-commercial organisations, as well as from the scientific community from 56 countries. The ENERPO Research Center had the honor to organise the **“Future Energy: Alternative Sources for Sustainable Development”** session and invited experts from the business and academic community to discuss current trends and perspectives of renewable energy against the backdrop of the changing environmental situation in the world.

**Maxim Titov**, Head of Energy and Infrastructure at the Eurasian Fund for Stabilisation and Development, who was a moderator of the session, opened the discussion by stating the most topical questions: What are the prospects for alternative energy at the moment? What obstacles might slow down the development of this industry? How to accelerate a transition to “green” energy?



**Maxim Titov, Alexey Zhikharev and Grigory Nazarov**

**Alexey Zhikharev**, CEO of the Association for the Development of Renewable Energy, shared his views on the current status and perspectives of renewable energy generation in Russia. Talking about the government program for the support of renewable energy producers in the wholesale capacity market, the speaker highlighted that about 4.3 GW of renewables-based power generation capacity out of the planned 5.4 GW has already been realised in the form of projects. Today, renewable energy facilities function in more than 50 regions of the Russian Federation. By 2035, renewable energy capacity in Russia will increase by 10 GW.

**Grigory Nazarov**, CEO of NovaVind JSC (Rosatom’s wind power division), shed light on the current situation and future vision for wind energy generation at Rosatom. Among the advantages of renewable over traditional energy, the speaker mentioned a short construction cycle, easy automation and operation without direct human intervention, knowled-

ge intensity and the ability to meet the growing electricity demand and lead to the efficient development of territories. Speaking of wind-power engineering development at Rosatom, Mr Nazarov talked about the NovaVind pilot project for the construction of a wind farm in the isolated energy system of Sakhalin Island, within the framework of which the necessary research is currently being carried out. It is expected that the investment decision on the project will be made in 2024.

The discussion then turned to the use of hydrogen as an energy resource, and **Konstantin Romanov**, CEO of Gazprom Hydrogen LLC, shared his views on whether there is a place for hydrogen in the future of energy. As such, even though Gazprom Hydrogen LLC is focused on the development of innovative technologies for low-carbon production of hydrogen from natural gas, today, hydrogen is used little as an energy resource due to its high cost. According to the speaker, given the challenges associated with the use of hydrogen, natural gas remains the real energy resource of the future.



**Konstantin Romanov and Branko Milicevic**

The discussion on hydrogen was continued by **Branko Milicevic**, Sustainable Energy Division, United Nations Economic Commission for Europe, who raised a question about whether hydrogen can become a part of the future energy system. According to the speaker, we still do not know the answer to this question as the cost of hydrogen in Europe remains high: €12/kg or more, although it may go down to €5–8/kg by 2030. Despite unprecedented political support for low-emission hydrogen in the UNECE Region, only 4% of hydrogen projects get financed, according to IEA. As such, the UNECE Hydrogen Task Force is trying to explore whether there is a business case for low-emission hydrogen. Overall, blending natural gas and hydrogen may accelerate deployment.



**Alexey Kobzev**, Independent Expert on Energy Transition in Central Asia, Project Manager for Renewable Energy and Climate Change, touched upon energy transition in Central Asia with examples from Uzbekistan and Kazakhstan. Talking about Uzbekistan, the speaker mentioned the approval of the “Concept of providing the Republic of Uzbekistan with electrical energy for 2020–2030” by the Government of Uzbekistan. As such, Uzbekistan pledges to ensure carbon-neutral power generation by 2050 and to reduce CO<sub>2</sub> emissions per unit of GDP by 35% (2010) by 2030. According to the expert, the electricity generation sector is the backbone of Uzbekistan’s economy and is responsible for a significant share of the country’s greenhouse gas emissions. Thus, decarbonisation of electricity production will play a critical role in achieving Uzbekistan’s climate goals. As for Kazakhstan, the country is among the top 30 in greenhouse gas emissions and has accepted ambitious international commitments, namely: to increase the amount of energy generated from renewable energy sources by 5 times from 3% to 15% by 2030 and to reduce the share of energy generated from coal from 70% to 40%. According to the speaker, private initiatives will be the main source of financing for achieving carbon neutrality goals.

**Michael Oshchepkov**, Researcher at RC ENERPO, European University at St. Petersburg, presented a book “Russian Coal in the Era of Climate Change” written by a team of ENERPO experts including Nikita Lomagin, Irina Mironova, Maxim Titov and Michael Oshchepkov. The book examines the Russian coal industry in different contexts: historical, modern and in the context of active promotion of the global climate agenda and energy transition processes, which are also relevant for Russia. The speaker shed light on the key findings of the book and outlined challenges and prospects for the Russian coal industry in the era of climate change. Among the challenges, three factors were mentioned, such as transport (railway to the East), excess natural gas volumes and internal competition, as well as pricing conditions. The speaker also touched upon new opportunities for the coal industry in times of renewable energy.



**Alexey Kobzev and Michael Oshchepkov**

**Olga Teplova**, Head of the Sustainable Development Department, Researcher at RC ENERPO, European University at St. Petersburg, spoke about innovative activities and patent portfolios of the BRICS countries in the context of energy transition. The speaker shared the results of the study conducted by RC ENERPO and ARS-Patent, the purpose of which was to understand what technological solutions will be used to implement the energy transition and what approaches are applied to assess the technological risks of this transition. The study showed that European countries rank first in the world in patent families for low-carbon technologies in the energy sector with a share of 28%, followed by Japan at 25% and the USA at 20%. China accounts for 8% of all patent families. In these countries, the number of patents related to renewable energy technologies has been declining since 2012, which reflects a certain market maturity for some of these technologies, including solar PV systems. A similar trend is observed in the BRICS countries. RES technologies that were patented before 2012 are, for the most part, already at the commercialisation stage and are being used to implement energy projects. The maturity of the PV technology market has allowed half of the Paris Agreement countries (49%) to include it in their Nationally Determined Contributions by 2030 as a mitigation solution costing less than US\$20 per tonne of CO<sub>2</sub>e.



**Olga Teplova and Ekaterina Grushevenko**

**Ekaterina Grushevenko**, Expert of the Center for Energy Transition and ESG, Skolkovo Institute of Science and Technology, addressed CCUS technologies and stated that in the European Green Deal, CCUS is designated as a breakthrough technology without which the EU will not be able to reduce CO<sub>2</sub> emissions by 55% relative to 1990 by 2030. The application potential of CCUS is very wide, so the technology





*Speakers and guests of the session “Future Energy: Alternative Sources for Sustainable Development” at the V International Municipal BRICS+ Forum in Saint Petersburg (November, 2023)*

may be of interest to both the oil industry and end product producers. Additionally, the speaker mentioned that there are few estimates of CCUS demand in the world, and they differ from one another. However, projections indicate that over the next 30–50 years a new large-scale carbon capture, transport, utilisation and storage industry will need to be created, and its volume is minimally estimated at an average of 4–5 Gt by 2050.

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#### ***About Anastasiya Oshchepkova***

Anastasiya Oshchepkova is the Editor-in-Chief at the ENERPO Journal. She holds her Master’s in International Relations from Saint Petersburg State University. Currently Anastasiya is a PHD candidate at SPbU’s School of International Relations, focusing on energy cooperation between Russia and France.

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# ADVANTAGES OF USING CO-OPTIMISATION MODELLING SOLUTIONS FOR INTERCONNECTED ENERGY MARKETS

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Viewpoint by *Evgeniia Kirillova*

*The views expressed in this article are solely those of the author and she is not speaking on behalf of her employer.*

## Abstract:

The transition to a sustainable energy future requires a thorough understanding of the intricate dynamics within electricity, hydrogen and natural gas energy markets. Integrated models have emerged as essential tools to navigate this complexity, providing comprehensive insights into future energy landscapes and enabling prudent decision-making. However, the integration of these energy systems presents unique challenges, requiring strategic capacity planning and co-optimisation to ensure seamless interactions. This paper explores the integration of the electricity, hydrogen and natural gas energy worlds within a co-optimisation framework, addressing practical issues and benefits for strategic planning. The co-optimisation model generates dynamic commodity pricing by linking, for example, the production of hydrogen to the hourly generation of electricity used to produce the same hydrogen through electrolysis. The utilisation of the produced hydrogen is in turn linked to the generation of electricity through combined cycle gas turbines (CCGT). Critical considerations include maintaining consistent units and currency, ensuring technology and price consistency, and addressing cumulative differences. The benefits of co-optimisation models extend to both companies and policy makers, facilitating better decision-making by optimising capacity expansions, minimising costs and balancing economic efficiency with environmental impact. These models enable the seamless deployment of clean energy solutions, mitigate the risks associated with energy price volatility, and promote operational resilience. In summary, the integration of co-optimisation models provides a holistic approach to energy decision-making, maximising the potential of electricity and hydrogen energy systems in the transition to a sustainable energy future.

**Keywords:** capacity expansion, co-optimisation, energy transition, fuel switching, hydrogen integration, integrated modelling, interconnected systems, market dynamics, strategic decision-making, sustainable energy

## Преимущества использования решений в сфере моделирования кооптимизации для взаимосвязанных энергетических рынков

**Аннотация:** Переход к устойчивому энергетическому будущему требует глубокого понимания сложной динамики рынков электроэнергии, водорода и природного газа. Интегрированные модели стали важными инструментами для преодоления этой сложности, обеспечивая всестороннее понимание будущих энергетических ландшафтов, позволяя принимать разумные решения. Однако интеграция этих энергетических систем представляет собой специфические проблемы, требующие стратегического планирования производственных мощностей и согласованного подхода в моделировании для обеспечения точного взаимодействия всех элементов кооптимизационной модели. В данной статье исследуется интеграция миров электроэнергии, водорода и природного газа в рамках кооптимизации, рассматриваются практические вопросы и преимущества для стратегического планирования. Модель кооптимизации формирует динамическое ценообразование на сырьевые товары, связывая, например, производство водорода с почасовой генерацией электроэнергии, используемой для производства этого же водорода путем электролиза. Использование произведённого водорода, в свою очередь, соединено с генерацией электричества посредством газовых турбин комбинированного цикла (CCGT). Важными факторами являются поддержание единообразия единиц измерения, технологий и валют, что обеспечит последовательность в контексте ценообразования и позволит устранить кумулятивные различия. Преимущества моделей кооптимизации актуальны как для компаний, так и для законодателей, так как данные модели способствуют более эффективному принятию решений за счёт оптимизации расширения мощностей, минимизации затрат и уравнивания экономической эффективности и воздействия на окружающую среду. Эти модели позволяют беспрепятственно внедрять решения в области экологически чистой энергетики, сни-

жать риски, связанные с волатильностью цен на энергию, и повышать эксплуатационную устойчивость. Таким образом, интеграция моделей кооптимизации представляет собой целостный подход к принятию решений в сфере энергетики, максимизируя потенциал электроэнергетических и водородных энергетических систем при переходе к устойчивому энергетическому будущему.

**Ключевые слова:** взаимосвязанные системы, динамика рынка, интеграция водорода, интегрированное моделирование, кооптимизация, переход на другой вид топлива, принятие стратегических решений, расширение мощностей, устойчивая энергетика, энергетический переход

### A Holistic Approach to Navigating the Complexities of Energy Market Integration in Co-optimisation Modelling

Navigating the complex dynamics of energy markets is akin to deciphering a labyrinth of interconnected systems, where every decision has ripple effects across the landscape. Recent studies highlight the paramount importance of integrated models over isolated simulations in navigating the complexities of energy transitions<sup>1</sup>, which have long since moved beyond planning or creating simulations of individual standalone energy markets.

Some authors note that the need to coordinate data from multiple energy market actors can make co-optimisation of non-isolated energy systems more complex. However, they also point out that practical applications of these co-optimisation approaches show significant improvements in the operational efficiency of the whole energy system and reductions in carbon emissions<sup>2</sup>.

More and more researchers<sup>3</sup> are highlighting that carefully designed co-optimisation models mainly aim to achieve several key objectives: minimising total costs, improving the integration of energy conversion and storage technologies, developing the knowledge of different market behaviours, and understanding market interconnectedness.

In addition, current European network organisations, such as the European Network of Transmission System Operators for Gas (ENTSO-G), emphasise the importance of testing “Interlinked Models”. These models integrate hydrogen, electricity and other gas markets to understand the impact of the energy transition on the size and design of future energy networks<sup>4</sup>. The recently published Interlinked Model (ILM) 2024

progress report<sup>5</sup> highlights several benefits of developing co-optimisation models. The report notes that this direction of energy modelling is in line with the TEN-E Regulations: Regulation (EU) 2022/869 on guidelines for trans-European energy infrastructure, which requires coordinated system planning across sectors. Co-optimisation energy modelling represents a significant step forward in understanding and managing an increasingly integrated energy system, which is crucial for achieving the EU’s long-term energy and climate goals.

However, in the midst of this complexity, strategic capacity planning within an integrated framework takes centre stage. Models that convolutely connect together market interactions, including the dynamics of fuel switching in generation capacity, provide a comprehensive view of the future energy landscape and enable more prudent decision-making.

Delving deeper into the realm of energy markets, the electricity sector operates within its own unique set of rules and dynamics. With a strong focus on hourly production and dispatch, the electricity market requires bespoke models that reflect day-ahead electricity markets, meticulously analysing bidding strategies and generator capacity across a range of energy sources, from renewables to traditional fossil fuels.

As the world moves towards a cleaner energy future, hydrogen is emerging as a key player in the transition. To understand the nuances of the hydrogen market, it is necessary to look at the various sources of supply. Among these, blue hydrogen, derived from Steam Methane Reforming (SMR) plants, embodies the stability of the natural gas world, characterised by relatively stable pricing with contracted volumes.

In contrast, green hydrogen, which is produced by power-to-x (P2X) electrolysers, represents a paradigm shift, relying entirely on intermittent renewable electricity generation. These different sources of supply must seamlessly match demand volumes at national hubs connected by hydrogen pipelines, with flexibility provided by additional storage capacity to accommodate fluctuations in demand and price adjustments during peak periods.

Although hydrogen, electricity and natural gas are integral parts of the future energy landscape, they are measured in fundamentally different units. Electricity, typically measured

<sup>1</sup> IRENA (2022), World Energy Transitions Outlook 2022: 1.5°C Pathway, International Renewable Energy Agency, Abu Dhabi, <https://www.irena.org/Digital-Report/World-Energy-Transitions-Outlook-2022>.

<sup>2</sup> Géremi Gilson Dranka, Paula Ferreira, A. Ismael F. Vaz, “A Review of Co-optimization Approaches for Operational and Planning Problems in the Energy Sector”, Applied Energy, Volume 304, 2021, 117703, ISSN 0306-2619, <https://doi.org/10.1016/j.apenergy.2021.117703>.

<sup>3</sup> Haoxin Dong, Zijing Shan, Jianli Zhou, Chuanbo Xu, Wenjun Chen, “Refined Modeling and Co-optimization of Electric-hydrogen-thermal-gas Integrated Energy System with Hybrid Energy Storage”, Applied Energy, Volume 351, 2023, 121834, ISSN 0306-2619, <https://doi.org/10.1016/j.apenergy.2023.121834>.

<sup>4</sup> ENTSOG and ENTSO-E Publish Their Joint Electricity and Hydrogen Interlinked Model 2024 Progress Report for Public Consultation, 7 May 2024, <https://www.entsoe.eu/news/2024/05/07/entsog-and-entso-e-publish-their-joint-electricity-and-hydrogen-interlinked-model-2024-progress-report-for-public-consultation/>.

<sup>5</sup> Progress Report on Interlinked Modelling. The Cross-sectorial Integration of Energy System Planning, ENTSOG and ENTSO-E. [https://www.entsoe.eu/sites/default/files/2024-05/entsos\\_ILM\\_progress\\_report\\_240430.pdf](https://www.entsoe.eu/sites/default/files/2024-05/entsos_ILM_progress_report_240430.pdf).

in kilowatt hours (kWh), quantifies the amount of energy consumed over a period of time, reflecting the flow of electrical charge through a circuit. Hydrogen, on the other hand, is often measured by volume, typically in cubic metres (m<sup>3</sup>), or by mass, such as kilograms (kg) or metric tonnes (t). This distinction arises from the different nature of their respective properties and applications. While electricity represents the flow of electrons through a conductor, hydrogen is a gas that can be stored and transported in various forms, such as compressed gas or liquid. Understanding and reconciling these differences in units of measurement is essential for effectively integrating hydrogen and electricity into energy models and systems, and for ensuring accurate analysis and decision-making in the transition to a sustainable energy future.

In addition, natural gas, an important player in the energy landscape, is measured in units such as cubic metres (m<sup>3</sup>) or cubic feet (ft<sup>3</sup>), reflecting its volume when stored or transported. Unlike hydrogen and electricity, natural gas is a fossil fuel composed primarily of methane and is widely used for power generation, heating and industrial processes. Its different properties and applications further emphasise the need to understand and accommodate different units of measurement within energy modelling frameworks.

In addition, liquefied natural gas (LNG) represents an additional dimension to the measurement and use of natural gas. LNG is natural gas that has been cooled to a liquid state for ease of storage and transportation and is typically measured in metric tonnes (t) or cubic metres (m<sup>3</sup>) in its liquefied form. This process allows natural gas to be transported over long distances to regions without pipeline infrastructure, facilitating global trade and increasing energy security. As LNG plays an increasingly important role in the global energy market, understanding its unique units of measurement and logistical considerations is critical to comprehensive energy planning and sustainable development initiatives. In the context of energy modelling and system integration, the consideration of LNG's unique characteristics alongside hydrogen and electricity further underlines the complexity and importance of reconciling different units of measurement for effective decision-making in the transition to a more sustainable energy future.

As we navigate the transition to a sustainable energy future, harmonising the units of measurement of hydrogen, electricity and natural gas will be paramount for holistic energy planning and decision-making.

Creating a cohesive, integrated model that fully captures the nuances of different energy markets is a formidable task. Each market operates within its own ecosystem, governed by unique rules, dynamics and nuances. From the hourly nuances of electricity generation and dispatch, to the stability of contracted volumes in the natural gas world, to the renewable-dependent nature of hydrogen production, every detail matters.

Failure to account for these nuances risks compromising the effectiveness of the model and, consequently, the integrity of the decision-making process. The importance of attention

to detail cannot be overstated. Only by carefully considering the specifics of each market can we ensure the seamless interplay necessary for a sustainable energy future. Embracing this complexity and seeking a holistic understanding paves the way for informed decision-making and the realisation of a greener, more resilient energy landscape.

### **Practical Issues Needed to Be Awarded and Solved prior of Designing the Model**

The design of the co-optimisation model depends on the establishment of complex linkages. These links weave together the dynamic price of natural gas, driven by fundamental market movements, and the price of hydrogen, determined by two different production methods (SMR and electrolysis) alongside Combined Cycle Gas Turbines (CCGT). The objective is twofold: firstly, to manage the supply of electricity to electrolysers (P2X units) for green hydrogen production, while meeting baseload electricity demand. Secondly, it needs to be checked that CCGTs receive hydrogen from both SMR and P2X sources, each with its own market fundamentals. At the same time, hydrogen fuel, which is subject to dynamic pricing at the national hydrogen hubs, must be delivered efficiently to the hydrogen-fuelled CCGTs, and this requires accurate regional modelling for seamless connections. A similar process applies to natural gas generation units, with natural gas being connected to both natural gas power generators and SMR units.

Developing a co-optimisation solution for such a model presents its own set of challenges. It's like conducting a symphony in which a classical orchestra meets modern electronic beats – balancing the levels of granularity, time scales and volatility risks inherent in two different energy domains. Bridging these divides is not just about finding common ground; it is about embracing the inherent complexities and intricacies of both worlds.

To ensure the accuracy and reliability of our modelling approach, we need to address several critical considerations:

**1. Unit and heating value consistency.** Maintaining consistency in units across all parameters is critical for accurate comparisons and calculations. In particular, for prices, volumes and energy content, consistency in units and heating values, whether high heating value (HHV) or low heating value (LHV), is paramount when dealing with different fuels.

**2. Currency and base year consistency.** Using the same currency and base year throughout the modelling process facilitates meaningful comparisons and ensures consistency of price data and economic parameters across different model segments.

**3. Price mechanisms and technological consistency.** Ensuring consistency of pricing mechanisms across different parts of the model is critical to maintaining accuracy in forecasting and analysis. For example, if a disaggregated model uses a specific natural gas pricing mechanism for gas-fired plants, it is important to verify that the natural gas price nodes in the co-optimisation model are connected correctly and reflect

what was intended. Similarly, maintaining consistency between technologies in the co-optimisation model, including the non-fuel portion of operating costs, is key to accurate assessments. For example, if hydrogen-methane reforming is linked to steam reforming rather than autothermal reforming in a disaggregated model, this distinction should be appropriately reflected in the linked model.

**4. Awareness of cumulative differences.** Recognising the potential impact of accumulated differences is critical, as even small discrepancies can lead to significant errors in modelling results. Proactively addressing these differences improves the accuracy and precision of our analyses and avoids potential pitfalls.

By following these guidelines and carefully addressing each aspect, we can strengthen the integrity of our modelling framework, paving the way for reliable insights and informed decisions in the dynamic energy landscape.

### Benefits for Strategic Planning

The integration of co-optimisation models and solutions provides a flexible approach to the complexities of energy markets, benefiting both companies and policy makers. These models combine the dynamics of different natural energy markets, providing a comprehensive view of the energy landscape, which in turn facilitates better decision-making. By prioritising strategic capacity planning within an integrated framework, they enable detailed analysis of market interactions and fuel switching dynamics that are critical for effective energy transitions.

These models have demonstrated superior performance compared to stand-alone models, resulting in smoother price curves and more optimal capacity expansions. They excel at simultaneously optimising different facets of the energy landscape, including generation, transmission and storage. By harmonising cost targets across all components, market participants can determine the optimal mix of energy sources to meet demand while minimising costs. Essentially, they foster a dialogue between different fuel types, enabling a thorough assessment of how different renewable technologies can be seamlessly integrated.

Taking into account factors such as intermittency, geography and grid constraints, these models enable policymakers to develop strategies that facilitate the seamless deployment of clean energy through diverse solutions. Navigating energy markets is similar to navigating complex ecosystems with myriad stakeholders, ranging from producers and consumers to grid operators. As a result, energy price volatility and supply disruptions pose risks to businesses and utilities. These models enable companies to assess risk scenarios and develop strategies to mitigate them, such as optimising investments in energy storage to reduce exposure to price fluctuations.

They also help to determine the optimal timing of such actions, thereby saving costs and strengthening grid stability. In essence, these energy models provide policy makers and

market participants with data-driven insights that enable them to make informed decisions that balance economic efficiency, environmental impact and operational resilience, all based on a single solution to the equation.

### Conclusions

The inclusion of hydrogen in the energy market has led to smoother price fluctuations with fewer sudden spikes, fostering a more stable and balanced energy ecosystem. This success is due in part to the inclusion of a fully modelled hydrogen system that includes both blue and green hydrogen production methods. In addition, the use of natural gas for SMR processes has played a significant role in diversifying hydrogen production sources and reducing electricity consumption. In particular, the integration of blue hydrogen production with carbon capture and storage (CCS) technologies highlights its role in mitigating carbon emissions and promoting sustainable energy practices.

Through co-optimisation modelling solutions, we can strategically fuse all the pieces of the energy puzzle to maximise their potential within the landscape. By simultaneously addressing multiple objectives such as cost minimisation, emissions reduction and resource optimisation, these models provide a holistic approach to energy decision-making.

The dynamics of energy markets present a complex but manageable challenge if the model is well designed, with the integration of different energy worlds emerging as a pillar for strategic planning in the transition to a sustainable energy future. By creating carefully designed links between the different energy worlds, co-optimisation models provide a comprehensive understanding of the interactions between markets and the dynamics of fuel switching and energy transition process.

### About Evgeniia Kirillova

Evgeniia Kirillova is an energy strategy specialist with over 8 years of experience in senior positions at prominent energy companies. Currently a Senior Energy Market Analyst at a software company developing an energy modelling and analysis platform, Evgeniia is involved in the development of forecasting and optimisation models tailored to global energy markets, with a particular focus on natural gas, hydrogen and electricity. At Gazprom, Evgeniia led strategic projects, including the development of a mathematical application that improved the accuracy of long-term calculations for natural gas flows. Evgeniia holds a Master's degree in Corporate Finance and Risk Management from Université Paris Dauphine – PSL.

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# “BRINGING THE YOUNG GENERATION TOGETHER IN CENTRAL ASIA”: THE OSCE ACADEMY IN BISHKEK

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*Interview with Pal Dunay*  
*Held by Irina Mironova*



## Abstract:

The OSCE Academy, established in 2002 in Bishkek, Kyrgyzstan, stands as a unique regional initiative. It marked the first time the OSCE partnered with a participating state to create a training institution. As of 2024, the Academy boasts over 650 alumni working across various sectors both within Central Asia and beyond. In this interview with the Academy's Interim Director, Pal Dunay, we explore the origins of the OSCE Academy, the evolution of its curriculum, and the challenges it currently faces. We also reflect on the vital role of education in promoting regional development.

**Keywords:** conflict resolution, education, international relations

## «Объединяя молодое поколение в Центральной Азии»: Академия ОБСЕ в Бишкеке

**Аннотация:** Академия ОБСЕ была основана в 2002 году в Бишкеке

(Кыргызстан) и стала уникальной региональной инициативой. ОБСЕ впервые создала учебное заведение в сотрудничестве с государством-участником. К 2024 году более 650 выпускников Академии работают в различных секторах как в Центральной Азии, так и за её пределами. Пал Дунай, временный директор Академии, рассказал в интервью об истории создания Академии ОБСЕ, развитии её учебных программ и текущих вызовах. Мы также обсудили важную роль образования в развитии региона.

**Ключевые слова:** международные отношения, образование, разрешение конфликтов

**Irina Mironova:** *Dear Pal, I would like to thank you for finding the time to do this interview. Can you tell me about the origins of the OSCE Academy?*

**Pal Dunay:** The OSCE Academy was established in 2002 upon the initiative of Kyrgyzstan. Although originally the initiative focused primarily upon Kyrgyzstan, following consultations with the OSCE it became a unique regional initiative. It was the first time the OSCE established a training institution in cooperation with a participating state. Its activities started with a so-called trial course. In 2004, the Academy received the building at Botanicheskiy Pereulok in Bishkek where it has worked since.

The first Politics and Security MA (Central Asia) class graduated in 2005. Since then, many of those in that class have

achieved a lot. One of them is a member of the government of Kyrgyzstan, another teaches at a reputable university in the Far East to mention but two.

**Irina:** *What are the Academy's main objectives, and why was Bishkek selected as its location?*

The Academy is an institution whose main aim is to provide the students with high quality professional training in certain critical areas. It is an institution that fosters the development of the region through post-graduate, and (since 2022 also undergraduate) education, bringing the young generation together in the region. This basic activity is complemented by executive education and some policy-oriented research published by the Academy on its website and elsewhere, including open access books. The Academy aims

to be one of the centres of international intellectual life in Bishkek and has achieved quite a lot in that area from time to time. It is essential to notice that there is one political consideration behind this. Namely, to bring the young intellectuals in the region together and contribute to region-building so that cooperation would prevail. Even though the favorable changes during the last decade were contributing to an improvement of cooperation in Central Asia, it will take further efforts to consolidate and contribute to maintaining its dynamism. The OSCE Academy makes its complementary contribution to this process by its own limited means.

Of course, the agenda broadened as time elapsed. The Academy moved from one MA programme to three, has a BA programme on economics, regular cooperation in executive training and an incredibly active Alumni programme for our more than 650 alumni.

The list of states that attend the courses broadened. First, Afghan students started to arrive in the second half of the first decade of the century, whereas following the accession of Mongolia to the OSCE in 2012, students have also arrived from that country. In addition to the seven countries, the citizens of other OSCE participating states are also welcome. The Academy was fortunate to have students from Russia, Belarus, Poland, Germany, the UK, Denmark, Canada and the U.S. to mention but a few.

Bishkek has been the host of the Academy for two main reasons: firstly, it was the initiative of Kyrgyzstan to establish the institution. Secondly, Kyrgyzstan was standing out in Central Asia with its established record of respecting the values that the OSCE expects from its participating states to share. Time proved the correctness of this choice even though historical developments, including the not particularly favorable position of some Central Asian states towards the OSCE until some turning points in their historical development, had a bearing upon the composition of the student body. The same applies to some historical changes in the region. It is understandable that the tragic collisions between Kyrgyz and Uzbeks in the south of Kyrgyzstan in 2010 reduced the interest of Uzbek students to apply. The situation is different with Afghan students who have difficulties joining our courses since 2021. The Academy appreciates that the authorities of Kyrgyzstan try their best to support it also in this area.

**Irina:** *During my time as a visiting lecturer in 2014 and 2016, I recall the Academy offering two master's programs – one focused on economics and another on politics and security/conflict resolution. What were the reasons behind promoting these two particular fields?*

**Pal:** The Politics and Security (Central Asia) MA programme was the first, and for some time the only, long programme that the OSCE Academy offered. It was apparent that if states of the region after the dissolution of the Soviet Union were looking for their identity that meant both defining what a nation was and what it was not. The Academy could help with the intellectual foundations of understanding the political processes. The second MA, in Economic Governance and Development was also demand driven. It is clear that eco-

nomics interaction under conditions fully different from the Soviet planned economy is essential for regional development. Time proved that it was the correct decision more than 15 years ago to enrich the programme offer of the Academy.

Again, a phase of consolidation followed for approximately a decade. Under the leadership of Dr Alexander Walters, who was the director of the Academy between 2017 and 2022 and on the basis of earlier achievements partly, a vertical development began. The Academy launched the four year Economics BA programme in 2022. The first students will graduate from that programme in 2026.

A Ph.D. programme was also conceived. However, it had to be put on ice due to three major issues that the Academy had to consider:

1. The availability of financial resources.
2. The permanent faculty that can supervise and foster the realisation of the programme.
3. The physical capacity of the OSCE Academy: The building that is now used is beyond capacity.

Without a change in each of these three, now another consolidation phase has to follow. This is my task, and this will be the main task of the next director coming into office in early 2025. I find this an appropriate challenge.

To tell the truth, I never felt I was apt as a transformational leader for a variety of reasons. Maybe I am not brave enough, I am very careful and avoid radical decisions, including ones related to personnel. However, I find managing the Academy, hopefully guaranteeing its smooth functioning, will recreate collegial relations that were somewhat weakened due to four persons rotating in the leadership of the Academy during the last two years. Now, consolidation of the achievements will have to be the priority.

However, there are a few plans that may go beyond just consolidation. The Academy's plan to participate in a regional MA programme based on the cooperation of several universities is on its way and if all goes well, the Academy hopes to welcome the first students in Spring 2027. It will be the fourth, and last semester of the two year MA programme. We are beyond the first planning meetings with our partners and we are very much looking forward to the Academy's participation.

**Irina:** *The Academy recently introduced a new program incorporating human rights and sustainability. When was this program launched, and how does it align with the Academy's strategic vision?*

**Pal:** There is no need to argue in favor of human rights and sustainability that are essential in Central Asia. The region has limited democratic experience. In some cases, it extends to a few years, in others a few decades. The more the Central Asian former Soviet republics distance themselves from the Soviet legacy, the more they will be regarded as developing countries. In sum, both issues are highly relevant on the regional agenda. This MA programme, just as the two others, have been demand driven to address those matters, which

are the most relevant in the region (and due to the participation of students from Afghanistan and Mongolia) also in its neighborhood. Even though under the current conditions the knowledge acquired in this programme may not be put to use in Afghanistan under the current conditions, it must never be forgotten that such teaching programmes are investments in the future.

The Master of Arts Programme in Human Rights and Sustainability (MAHRS) is unique in the sense that it is part of the Global Campus of Human Rights, one of eight hubs, and the only one in Central Asia. This opens a window again to the world in an area that multiplies the opportunities for the students of the Academy to understand the value system and the aspirations of many states and societies to pursue, and the advantages of acting in support of human rights and sustainability. It goes without saying that such a programme also takes a critical look at the situation in these fields. It is not propagating an agenda, it is presenting and analysing. The programme started in September 2023 and the first students will graduate in February 2025. As I have seen the thesis outlines of the students, I was very impressed by the variety of approaches ranging from abduction of women to language rights, and to the relationship between national security and human rights. The Academy does not take a position on these matters, and we respect the views of students if they elaborate and argue their position on a high level. The quality of the forthcoming theses is very promising. We are all looking forward to the day when the theses will be submitted on 8 January 2025 to see the quality the students will demonstrate with their theses. We will be glad to see the first graduates of the MAHRS programme together with the two other MA courses on the 14th of February 2025 when the students receive their diplomas.

**Irina: What key challenges does the Academy currently face?**

**Pal:** The OSCE Academy has often been facing challenges during the last 22 years. Some old and new challenges co-exist on the agenda. As I mentioned above, the OSCE Academy went through rapid growth during the last five years and it is now the most important to provide for the conditions to consolidate the achievements. The BA and MA programmes stand, and in their cases, it is the most important to continue to attract excellent students from each of the seven states. It is just as important to guarantee that an excellent international body of professors would continue to find the OSCE Academy attractive to engage in teaching for a week (a module), a semester, or a year if not more. Still on the substance, it is important that the Academy would carry out high quality policy-oriented research and publish its results. Fortunately, and as a small step, the Policy Brief series<sup>1</sup> restarted after a year long interval, and five papers will get published before the end of 2024.

All this is related to resources that entail funding, the retention of the dedicated and motivated staff of the Academy, and finding a new venue that will be sufficiently large to host all

our classes. This could not be achieved for the 2023-4 academic year when we had to rent a classroom for the first time. If the Academy cannot move to a new, larger facility, we will need two external classrooms in the autumn of 2025. However, I am hopeful that the matter can be resolved earlier. As the building of the OSCE Academy is the contribution of Kyrgyzstan as host state I hope that we will be helped with our relocation plan. As of now, state institutions move to new locations in Bishkek. I hope once the ministries and other parts of the Kyrgyz administration find their new location, the Academy will also benefit from the unceasing attention and support of the state reflected on helping find the Academy's new location after 20 years in the same building.

The OSCE Programme Office and the Academy work together to gain the support of donors to continue to fund the now significantly enlarged Academy. There are highly promising signs, and I hope this is only the beginning.

In sum, my work is divided between the substance and the "technical conditions" among which the Academy works. I hope the new director of the Academy, who will arrive in the beginning of 2025, will have the chance to focus more on the former and somewhat less on the latter.

**Irina: Could you highlight three notable achievements of your graduates that have had a significant impact?**

**Pal:** The former students of the Academy have been quite successful in their careers in various areas. There are many international officials among them, including 44 in various OSCE missions and offices. There are ranking civil servants that help their states to develop, including a few ambassadors. There are some who had to leave their countries, and we see outstanding primarily former Afghan students who are trying to find their chance in the world at large. There are many Ph.D. holders who teach at various universities from Europe to the Middle East, Central Asia and the Far East. In sum, although of course there are some Academy graduates who did not excel in their professional life, a very large majority is doing extremely well.

Of course, we must not forget that the Minister of Digital Development of Kyrgyzstan is a graduate of the first cohort of Politics and Security MA students. Of course, it is the result of her own effort, perseverance, and her studies not only at the Academy but also abroad but we share the pride with others.

**Irina: How are energy markets and economics integrated into the Academy's curriculum, and how do you see their impact on developments in Central Asia's energy markets?**

**Pal:** There is a course in the Economic Governance and Development Programme named "Economics and Regulation of the Energy Sector". This course aims to give students the fundamentals of energy economics and regulation. Students obtain a set of knowledge and tools to make judgments and talk about the economic part of the energy sector: the main "players" in the market, what affects prices and trends in energy, how certain markets are regulated, how the environment and climate are affected while we are producing and consuming energy, etc. Moreover, our students are trained to:

<sup>1</sup> "Academy Policy Briefs", The OSCE Academy in Bishkek, <https://osce-academy.net/en/research/publication/policy-briefs/>.

1. Describe global energy trends (production and consumption, supply and demand of energy from different sources like coal, hydro, etc.).
2. Compare various energy types (what are the pros and cons, availability, feasibility, how they are regulated, etc.).
3. Describe policies to incentivise and promote renewable/clean energy (cases from different countries and their effects).
4. Social and environmental aspects of energy (health, environment and climate related issues).
5. Have an understanding on the future of energy (what are the future trends, what are the new energy technologies, how AI will affect energy consumption, etc.).

Furthermore, supply-side and demand-side management strategies are delivered with different examples from various countries for increasing energy efficiency. Constructing new energy facilities is extremely expensive, so students learn the strategies to keep the energy production at the highest possible levels with minimum loss. On the other hand, consumers should use electricity in an optimal way. Students are presented with the question why public awareness is important, why we should insulate our buildings, and why energy efficient technologies should be used. Last but not least, not to leave charging units of mobile phones plugged in while we are not charging the phone.

**Irina: *We met with you for the first time in person about 10 years ago in Bishkek, at the Academy, and because of that I always associate your name with it. But you were not actually here all these years. How long have you served as the Academy's Director and how has your role evolved with time?***

**Pal:** My association with the Academy goes back to the beginning of the institution. I was working at the Geneva Centre for Security Policy (GCSP). As the Academy did not have permanent faculty, the GCSP signed a memorandum of understanding with it, and some faculty members from there as well as from some other similar institutions in Europe started to travel there and have courses and modules. As I have been interested in the so-called former Soviet space for a long time, I was very glad to come to the Academy. I was in Bishkek every year since 2003 except for 2020 when COVID prevented me from coming and I contributed online.

I may say the more I visited the Academy and Bishkek, the more I appreciated the colleagues who were working there, the student body consisting of excellent, ambitious, earnest, young people who wanted to achieve the best under not always the most favorable conditions. After several years of contribution to the teaching programme, supervising theses, and helping interns of the Academy who spent their internship at the GCSP, I found it logical to apply for the vacancy. Two former directors, Dr. Tim Epkenhans and Dr. Maxim Ryabkov did a great job during the nearly ten years they were leading the Academy and hence it was my main task to manage the Academy that was in excellent shape. I was selected and arrived on 1 May 2014. However, I had a difficulty: My family stayed in Budapest and while commuting from Geneva was easy, Bishkek was "a bridge too far". After 13 months I had to leave. I returned to Europe, more speci-

fically to Garmisch-Partenkirchen in the south of Germany that was only 720 kilometers from the family. However, I missed the Academy, and then returned for a further nine months in 2016. For the return, I asked for an unpaid leave from the Marshall Center that was kindly granted to me. However, and irrespective how much I loved the Academy and my job there, the prevailing reasons required my return to Garmisch in September 2016 again.

Still, I kept returning to have classes at the Academy. When I retired from the Marshall Center in Garmisch in May 2023, I informed the chairman of the board of trustees, Ambassador Alexey Rogov that I would be available to fill in the post temporarily if need be. (The post was vacant and the deputy director, Dr. Indira Satarkulova was working as acting director.) At that time, there was no need for such an interim solution. The Board of Trustees tried to fill in the vacancy on the basis of secondment. Finally, the new director, Dr. Kate Walker was not selected as a 'seconded'. She did a remarkable job as director. Unfortunately, she announced her resignation effective at the end of June 2024. However, my expression of interest to volunteer and contribute to the work of the Academy in 2023 was not forgotten. I was selected and started to work as interim director with a contract until the end of the year of 2024. Although the Academy has changed significantly, it became larger with a broad-ranging teaching, training and research agenda. I think my long term engagement with the Academy and experience as director was found useful. I enjoy the challenge of working at the Academy again. I am waiting for the selection of the new director and will then hand over the post at my best.

### **About Pal Dunay**

Dr. Pal Dunay is Interim Director of the OSCE Academy since 1 July 2024. He was director of the OSCE Academy between 1 May 2014 and 30 June 2015 and again between January and September 2016. Over the past 40+ years, Dr. Dunay, a lawyer by training, has worked in various positions, predominantly in post-graduate education and training. He taught public international law at his alma mater, Loránd Eötvös University, Budapest between 1982 and 1996, was course director at the Geneva Centre for Security Policy (1996–2004, 2007–2014), and was Professor of NATO and European Security Issues at the George C. Marshall European Center for Security Studies in Garmisch-Partenkirchen, Germany. He was a senior researcher at the Stockholm International Peace Research Institute (SIPRI) between 2004–2007.

His practical and management experience includes the role of legal advisor of the Hungarian Delegation to the Conventional Forces in Europe (CFE) talks, and the negotiations of the Treaty on Open Skies (1989–1992), head of the Security Policy Department of the Hungarian Ministry of Foreign Affairs (1991), Deputy Director of the Hungarian Institute of International Affairs (1994–1996), and Director of the same institution (2007).

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# WHAT IS THE OSCE, AND WHY IS ITS WORK IMPORTANT FOR ENERGY POLICY IN EURASIA?

Background note by *Irina Mironova*

Source: *OSCE website*<sup>2</sup>

The **Organization for Security and Cooperation in Europe (OSCE)** is an international organisation addressing security issues across a broad geographic region.

Discussions to establish a multilateral, supranational framework involving countries from both sides of the “Iron Curtain” began in the 1950s. These discussions led to the founding of the organisation in 1975 with the signing of the **Helsinki Final Act**<sup>3</sup> under the original name *Conference on Security and Cooperation in Europe (CSCE)*. Key elements of the CSCE’s foundational documents include:

- **Principles of State Interaction:** Emphasising mutual respect for sovereignty, territorial integrity, the inviolability of borders, non-interference in internal affairs, and the protection of human rights and fundamental freedoms.
- **Confidence- and Security-Building Measures:** Evolving into a comprehensive mechanism for the exchange of information on armed forces, including their composition, deployment, armament, and defense planning and funding.

The CSCE’s institutional framework was solidified in 1992, and in 1994, it was renamed the OSCE, a change that took effect on January 1, 1995. Today, the OSCE includes **57 participating states** from Europe, Central Asia/Eurasia, and North America.

The OSCE operates under the concept of **comprehensive security**, encompassing three key dimensions outlined in the Helsinki document:

- **Military-Political Dimension:** Covers arms control, hazardous chemicals regulation, conflict resolution, border security and counterterrorism efforts.
- **Humanitarian Dimension:** Involves protection of rights and freedoms, advancing education, strengthening democratic institutions, combating discrimination, supporting national minorities, election monitoring and press freedom.
- **Economic and Environmental Dimension:** Focuses on promoting sustainable economic growth, combating corrup-

tion, enhancing government transparency, and protecting the environment.

This comprehensive approach underscores the OSCE’s belief that political and economic rights violations can create tensions potentially leading to armed conflicts.

The OSCE maintains a strong presence in Central Asia through:

- Three program offices (in Kazakhstan<sup>4</sup>, Kyrgyzstan<sup>5</sup> and Tajikistan<sup>6</sup>);
- A program center (in Turkmenistan<sup>7</sup>);
- A project coordinator (in Uzbekistan<sup>8</sup>).

Since 2002, the OSCE Academy in Bishkek has provided education to students from Central Asia, Afghanistan and Mongolia, further fostering regional cooperation and development.

## Relevance to Energy Politics and Policy

Energy security – understood as the stable, sustainable and affordable access to energy resources – is a cornerstone of international security. Reliable energy access is a critical enabler of economic growth, political stability and societal prosperity. As such, achieving energy security aligns closely with the OSCE’s comprehensive security framework, especially within its economic and environmental dimensions.

Within this context, several energy policy themes are particularly relevant to Central Asia:

- Growing energy demand;
- Regional interconnections and regional market integration;

<sup>4</sup> OSCE Programme Office in Astana, <https://www.osce.org/programme-of-office-in-asta>.

<sup>5</sup> OSCE Programme Office in Bishkek, <https://www.osce.org/programme-of-office-in-bishkek>.

<sup>6</sup> OSCE Programme Office in Dushanbe, <https://www.osce.org/programme-office-in-dushanbe>.

<sup>7</sup> OSCE Centre in Ashgabat, <https://www.osce.org/centre-in-ashgabat>.

<sup>8</sup> OSCE Project Co-ordinator in Uzbekistan, <https://www.osce.org/project-coordinator-in-uzbekistan>.

<sup>2</sup> OSCE website, <https://www.osce.org/>.

<sup>3</sup> Helsinki Final Act, <https://www.osce.org/helsinki-final-act>.



- Energy transition and sustainability;
- Changing geopolitics of energy resources.

**List of selected publications by the OSCE relevant to the Central Asian energy sector:**

- Advancing Energy Security in Central Asia (2022). <https://www.osce.org/ocea/513787>
- Protecting Electricity Networks from Natural Hazards (2016). <https://www.osce.org/secretariat/242651>
- Advancing a Just Energy Transition in Central Asia: Women's Key Role in the Energy Sector (2024). <https://www.osce.org/ocea/561811>
- The Effects of the Crisis in Afghanistan on Central Asia's Energy Sector: A Risk Assessment (2024). <https://www.osce.org/ocea/564931>

# CARBON NEUTRALITY OF THE SCO COUNTRIES: PROSPECTS AND PROBLEMS FOR CARBON MARKET INTEGRATION

DOI: 10.33280/eusp.org.2024.77.97.001

Conference remarks by **Michael Oshchepkov**



## Abstract:

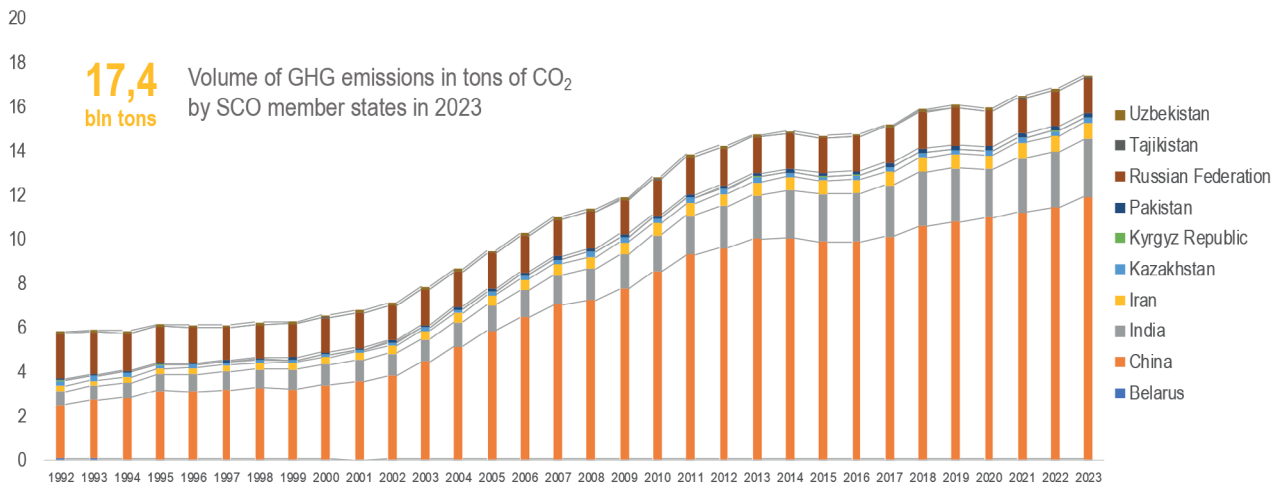
The paper highlights the challenges and opportunities of integrating carbon markets within the Shanghai Cooperation Organization (SCO) in pursuit of carbon neutrality among its member states. The paper was presented by Michael Oshchepkov at the VI International Municipal Forum of BRICS countries in Moscow and emphasises the potential of a unified carbon credit market to enhance emissions management and stimulate green technology innovation. However, significant barriers exist, such as regulatory discrepancies, a lack of uniform standards and transparency issues. The article advocates for collaborative efforts to develop a cohesive regulatory framework necessary for overcoming these challenges. Additionally, examples like Gazprom MCS's methane reduction project illustrate the quality of carbon credits that may strengthen the SCO's carbon market. Overall, effective cooperation among SCO states is seen as crucial for enhancing economic ties and addressing global climate challenges.

**Keywords:** carbon markets, carbon neutrality, climate projects, greenhouse gas emissions, international cooperation, regulatory framework, renewable energy investment, SCO

## Углеродная нейтральность стран ШОС: перспективы и проблемы интеграции углеродных рынков

**Аннотация:** В статье освещаются актуальные проблемы и возможности для интеграции углеродных рынков стран-участниц Шанхайской организации сотрудничества (ШОС), которые последовательно движутся к достижению целей по углеродной нейтральности. Презентация Михаила Ощепкова на VI Международном муниципальном форуме стран БРИКС в Москве подчёркивает большой потенциал единого рынка углеродных единиц для улучшения управления выбросами и стимулирования инноваций на международном уровне. Однако сегодня существуют значительные барьеры, препятствующие формированию единого углеродного рынка стран-участниц ШОС. Это и необходимость синхронизации регуляторных механизмов, и отсутствие единых стандартов реализации климатических проектов, и проблемы прозрачности данных. Автор подчёркивает необходимость совместных усилий для разработки единой нормативно-правовой базы, которая позволила бы преодолеть эти барьеры. Успешные примеры уже реализуемых климатических проектов демонстрируют широкие возможности российского рынка углеродных единиц, который мог бы внести значительный вклад в формирование единого углеродного рынка на всем пространстве ШОС. Поэтому эффективное сотрудничество между государствами-членами ШОС рассматривается как ключ к укреплению экономических связей и решению глобальных климатических проблем.

**Ключевые слова:** выбросы парниковых газов, инвестиции в возобновляемую энергию, климатические проекты, международное сотрудничество, нормативная база, углеродная нейтральность, углеродные рынки, ШОС

Volume of GHG emissions by SCO member states, bln tons of CO<sub>2</sub>

Source: World Bank

The VI International Municipal Forum of the BRICS countries was held in Moscow at the Expocentre site on August 27–28, 2024. This annual large-scale event is attended by representatives of federal, regional and municipal authorities, as well as large corporations. During the forum, participants discussed the socio-economic development, cultural integration, health problems, information technology and other issues of the BRICS countries. Michael Oshchepkov, Researcher at RC ENERPO, European University at St. Petersburg, delivered a presentation titled “**Carbon Neutrality of the SCO Countries: Prospects and Problems of Integration of Carbon Markets**”. The report contained the following theses.

The Shanghai Cooperation Organization (SCO) unites large countries with significant potential to reduce greenhouse gas emissions. The pursuit of carbon neutrality is a common goal of all SCO member states and opens up new opportunities for cooperation in the climate field.

One of the most promising areas of cooperation in the field of climate is the creation of a common market for carbon credits. A common market would optimise emissions management and stimulate the introduction of innovative technologies, increasing the effectiveness of combating climate change. The integration of carbon markets can strengthen trade and economic relations between the SCO member states, creating new opportunities for cooperation in the field of green technologies. In particular, the implementation of this direction will require additional efforts to invest in climate projects, including in the field of renewable energy, contributing to the transition to a low-carbon economy of all SCO member states.

The idea of the need to integrate carbon markets has many supporters, but this process is associated with a large number of barriers. The main obstacles are:

- **Differences in the regulatory framework.** The national carbon emission control systems of the SCO countries differ

significantly, which, in turn, creates obstacles to the rapid integration of greenhouse gas emission reduction markets. It is necessary to synchronise the national systems of all participating countries, and this is a long and complex process.

- **Lack of uniform standards.** Uniform and universally recognised standards for the implementation of climate projects are lacking, which makes it difficult to create a single market and creates barriers to international trade in carbon emissions reductions.
- **Transparency and accountability issues.** An effective monitoring, verification and reporting system is needed to ensure transparency in carbon markets as well, which will then need to be recognised by all participating countries.

Strengthening cooperation between the SCO countries in the field of climate will help overcome existing problems and create conditions for the successful integration of carbon markets. In particular, the creation of a unified regulatory framework for regulating greenhouse gas emissions and standards for the implementation of climate projects within the SCO would ensure compatibility between different national systems.

Russia is now actively moving in this direction, having launched a regulatory framework to limit greenhouse gas emissions and implement climate projects aimed at preventing and/or reducing greenhouse gases. Currently, Russia is implementing an experiment to achieve carbon neutrality in an individual region – Sakhalin. The first Russian projects, contrary to the expectations of the community, can already boast a high level of compliance with the world standard. For example, the project implemented by Gazprom MCS to prevent the release of natural gas (methane) during the preparation of sections of main pipelines for repair work has not only been validated and verified according to Russian standards, but also previously passed similar procedures according to the international ISO standard and has a certificate

of compliance with the UER (Upstream Emission Reduction) industry program. The carbon units generated as a result of the implementation of such a project could well become a commodity in the SCO unified carbon market, since they have the necessary level of quality.

While the success of Gazprom MCS could very well present advantages across the SCO, the integration of carbon markets within the organisation is a complex process that requires coordinated efforts by all member states. The advantages include increasing the reduction of greenhouse gas emissions, attracting investment, stimulating innovation and strengthening trade ties between countries. All these ideas together make such cooperation very promising both for strengthening integration ties between countries and stimulating the economic growth of participants, while working to solve the global climate problem, which the European University at St. Petersburg is dealing with in particular.

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***About Michael Oshchepkov***

Michael Oshchepkov is an Analyst at the ENERPO Research Center of the European University at St. Petersburg. He holds his Master's in Economics and Finance from St. Petersburg State University of Economics (UNECON). Currently Michael is engaged in the assessment of climate projects for the oil and gas sector, focusing on the development of the carbon units market.

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- Delve into the problems and prospects of relations in the energy sector between Russia, Europe, and Asia
- Study the influence of the energy sector on foreign policy and economic and social development in Russia, Central Asia, the Caucasus, and the Middle East
- Analyze the reaction of states, societies, and business to climate change challenges
- Learn to navigate news streams and identify key events that have an impact on energy markets
- Gain practical skills in working with energy statistics, while applying quantitative and qualitative methods of analysis
- Intern at a Russian energy company and partner of the university
- Carry out a research project in accordance with international standards, which will help in further studies for a PhD degree at a foreign university

#### THIS PROGRAM SUITS YOU IF...

- You intend to continue your academic career by enrolling in a university in the USA or Europe
- You plan to work for a public or private company in the Russian energy sector specializing in sustainable development issues, or you want to improve your professional knowledge and skills in this area
- You are attracted by the prospect of continuing your career in an NGO or public service, dealing with issues of sustainable development of the energy sector

#### ENERPO Courses

##### MODULE 1. RUSSIA'S ENERGY POLICIES

- Energy Security and Russian Politics
- Russia's Gas Strategy
- Russia-EU Energy Relations

##### MODULE 2. ENERGY ECONOMICS WITH ESG PRINCIPLES

- Economics of Energy Markets
- Introduction to Sustainable Energy
- Seminar on World Energy Affairs

##### MODULE 3. NATIONAL VS INTERNATIONAL ENERGY POLICIES

- Energy Security in Asia
- China and the Energy Transition
- National Oil Companies in the Global Energy Sector
- Energy Policy and Indigenous Populations of the Russian Arctic

##### ELECTIVE COURSES

- The Geopolitics of Green Energy
- The Future of the Russian Coal Industry in the New Energy Reality
- Sustainable Development in Metals and Mining

The language of instruction at the program is English.  
No prior knowledge of Russian is needed to enter the program.

LEARN MORE AND APPLY → [ENERPO.EUSP.ORG](https://enerpo.eusp.org)





## CALL FOR PAPERS

ENERPO Journal announces a call for papers for the first issue of 2025.

The Journal accepts articles **written in English** on the subjects of energy security, energy economics, energy policy, and the role of various fuels in the energy system. More specifically, the Journal seeks to cover topics such as:

- Analysis of regional markets for fossil fuels (oil, natural gas and coal)
- Analysis of policies and initiatives concerning fuel substitution, the transition to a 'greener' fuel mix
- The role of energy resources in the Russian economy
- Russian domestic market reforms for liquid fuels, natural gas, coal and electricity
- Russia's relations with key producing/exporting countries
- Russia's relations with key importers of fossil fuels
- Recurring geopolitical crises in Eurasia including, but not limited to, the post-Soviet space, Russia-EU, Central Asia, China and the Middle East
- Technology and innovation in fossil fuel production and implications for the cost of production and supply, and upstream project economics
- Energy efficiency and green economy

We accept two types of submissions:

**1. ANALYSIS**  
(2500 to 4000 words)

**2. VIEWPOINT**  
(1500–2000 words)

**The title of your submission should be in .doc(x) format and contain the following elements:**

- Name of author, title, section of the Journal (analysis/viewpoint)
- Abstract
- Keywords
- Text divided into sections
- The use of visual aids is strongly encouraged
- Information about the author (short biography, one paragraph)
- Contact details (e-mail address for correspondence)

*All submissions should be formatted in the Chicago citation style, with footnotes used for easier reading. If the article contains visual aids, all sources of illustrations and/or primary data should be indicated.*

**Please send your submissions to:**

**Anastasiya Oshchepkova,**

Editor-in-Chief,

[a.oschepkova@eu.spb.ru](mailto:a.oschepkova@eu.spb.ru)

and CC to: [enerpo@eu.spb.ru](mailto:enerpo@eu.spb.ru)

**Submission deadlines:**

**MAY 31, 2025**

Volume 13, Issue 1

**For more information, please visit ENERPO Journal web page:**

<https://enerpojournaleusp.org/>

## THE ENERPO JOURNAL

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**The ENERPO Journal** brings you up to date with events in international energy. The journal's main premise is that energy is not a weapon, and this basic understanding allows for pragmatic and more productive cross-border cooperation in energy. The journal publishes articles on a number of energy sources and markets for various types of fuels, because the energy system is not confined to oil and gas. The ENERPO Journal addresses specifics of national energy policies, political relations between the key players in international energy markets, the functioning of these markets, the institutional structure of the markets and other issues.

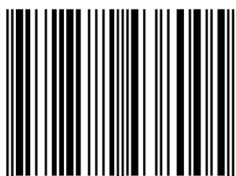
The journal was established in 2013 and is a publication produced by the **Energy Politics and Energy Transition in Eurasia (ENERPO) Program** in cooperation with **the ENERPO Research Center** of the European University at St. Petersburg. The goal of the ENERPO Journal is to bring exposure to the activities held at the ENERPO program as well as give the most successful students and other young researchers an opportunity to have their work published.

The main types of articles published in the ENERPO Journal are analytical articles and viewpoints/commentaries. ENERPO quality standards for analysis and research are at a professional level, while young researchers are often the ones providing creative solutions for the existing challenges. Thus, the work produced by the students and other young academics will be useful for experts and industry professionals.

The journal also sets out to bring exposure to the activities held at the ENERPO program. Most issues contain reviews of workshops and seminars held at ENERPO in a Workshop Review subsection, in which students relay and comment on the content of guest lectures within the Workshop Series. The ENERPO Workshop Series is a specialised cycle of meetings hosted by the European University, with lectures delivered by prominent experts in the field of energy policy, as well as representatives of the energy business in Russia and the CIS countries.

The content of each article is the author's opinion and does not necessarily reflect the views of European University at St. Petersburg.

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