

2024 CEEC Conference Report

Panels I, II, III, IV, V, Roundtables I and II: Adam Čermák Panels VI, VII, Special session, Special presentation, Luncheon session, Roundtable III: Samuel Sameš Editors: Peter Brezáni, Veronika Oravcová, Nolan Theisen

Central European Energy Conference



Tackling Energy Security and Transition Challenges

Bratislava, Slovakia Crowne Plaza Hotel 2-3 December 2024



Veronika Oravcová, Director of the Central European Energy Conference and Researcher at the Slovak Foreign Policy Association, recalled the long journey of the conference over the past 17 years starting with a focus on energy security and gradually converging with energy transformation. With the newly elected European Commission set to re-shape the future of the European Green Deal, there is great uncertainty about the energy transition and how member states, particularly those in Central Europe, will respond to upcoming legislative proposals. This makes the 18th CEEC energy and climate policy dialogue on the deeper decarbonization of the CEE energy systems especially timely and relevant.



Welcome and Introductory Remarks



Szabolcs Hodosy, State Secretary of Ministry of Economy of the Slovak Republic, emphasized that the current challenges in energy present a unique opportunity for Slovakia and Central Europe to turn strategic plans into actionable steps. Nuclear energy remains a key pillar for achieving a stable and environmentally sustainable future, serving as an investment not only in infrastructure but also in technological progress, education, and job creation, thereby contributing to the country's economic stability. Delays in past nuclear power plant projects have significantly increased the costs, so it is important the newly announced bloc in Bohunice sticks to the schedule. The completion of Mochovce 4 will free up skilled professionals that can turn their attention to constructing the new nuclear power source, an opportunity that the country will leverage.

The State Secretary highlighted that **modernizing and digitalizing Slovakia's electricity grid** is essential to support these advancements. The grid, built under different assumptions, must adapt to new demands such as decentralization, local energy sources, renewable energy, and new demand from electromobility and hydrogen technologies. Securing **adequate funding**, including EU resources, will be vital for ensuring the stability and reliability of electricity supply for all users through grid modernization and digitalization.

Mr. Hodosy concluded by emphasizing the importance of **stable energy prices** to ensure affordable energy for citizens and maintain the competitiveness of industry and businesses. Systemic measures and electricity market reforms **developing flexible infrastructure, and promoting sustainability** will be critical in achieving this. Updating national strategic plans will strengthen Slovakia's contribution to building an integrated, sustainable, and secure energy space within Europe.



Panel I.

Nuclear Energy in Europe: Opportunities, Expertise, and Obstacles



Chair:

Zuzanna Nowak, Analysis Director, The Opportunity Institute of Foreign Affairs

Speakers:

Petr Brzezina, President, Westinghouse Czech Republic

Christian Di Lizia, Senior Business Developer, Electricité de France (EDF)

Andrei Goicea, Policy Director, nucleareurope

Karel Katovský, Associate professor, Faculty of Electrical Engineering and Communication, Brno University of Technology

Miroslav Šarišský, Managing Director for Slovakia, newcleo

Tomáš Šimovič, Business Development Manager, Slovenské elektrárne







Zuzanna Nowak led the discussion on **the future of nuclear energy in Europe**, highlighting the opportunities and challenges associated with nuclear energy development while emphasizing the importance of regional cooperation and shared expertise to ensure that nuclear maintains a prominent role in meeting Europe's energy security and climate goals.

Andrei Goicea opened the discussion with an overview of nuclear energy's contribution to Europe's economy, noting that the sector currently supports one million jobs and generates €100 billion annually. The aim is to increase nuclear energy from the current 100 gigawatts of installed capacity to 150 gigawatts by 2050. He emphasized the critical role of nuclear energy in decarbonization, accounting for 50% of Europe's low-carbon electricity. He also outlined the main obstacles to achieving these goals, including supply chain challenges, skilled workforce shortages, and the need for long-term policy stability. He stressed the importance of a technology-neutral approach in EU energy policies to foster a sustainable and competitive nuclear sector.

Petr Brzezina provided insights about the deepening role of Westinghouse in **nuclear projects across Europe**, including **fuel supply to Ukraine** and ongoing projects in **Poland and Bulgaria**. He emphasized the importance of **localizing supply chains** and creating **strong partnerships with regional industries** to maximize economic benefits. He also highlighted the importance of **public support** for the nuclear industry, noting that these long-term projects often span multiple election cycles and require consistent political commitment. To ensure stability and continuity, he advocated for **intergovernmental agreements**, which can provide a framework for cooperation and investment.

Karel Katovský brought an academic perspective to the discussion, stressing the importance of focusing on proven reactor technologies—like pressurized water reactors (PWRs)—to ensure timely deployment and public confidence. While acknowledging the potential of advanced designs like small modular reactors (SMRs), he cautioned that these technologies are still



in development and would risk delaying immediate progress. He highlighted the critical role of **education in attracting talent** to the nuclear industry, citing a jump in Czechia's **student enrolment in nuclear engineering programs** following government announcements of new projects.

Christian Di Lizia emphasized the importance of harmonizing regulatory frameworks across Europe to facilitate standardized nuclear projects, which can reduce costs and construction times. He highlighted the economic impact of nuclear energy, noting that it is France's third-largest industry, employing over 220,000 people. He stressed the need for public acceptance and trust, which require effective collaboration between governments and the nuclear industry. He also addressed the role of innovation in existing technology, such as advancements in methods and efficiency, rather than abandoning them.

Miroslav Šarišský discussed innovative technologies like lead-cooled fast reactors, which can reuse spent nuclear fuel, reduce waste, and enhance energy independence. He called for Europe to close the nuclear fuel cycle to address resource dependencies and improve sustainability. He also emphasized the urgency of addressing Europe's innovation gap, warning that without decisive action, the region risks losing its competitive edge. He argued for greater **investment in research and development** to maintain Europe's leadership in nuclear technology.

Tomáš Šimovič highlighted Slovakia's achievements in nuclear energy, including the completion of the Mochovce 3 reactor and ongoing work on Mochovce 4. He identified SMRs as a promising technology for Slovakia's future energy needs, offering flexibility and scalability. However, he acknowledged that their development remains in its early stages. Slovakia's nuclear baseload power will allow it to strategically integrate new technologies over the next decade.

The panellists highlighted the importance of **workforce development**, noting that attracting young talent is essential for the **long-term sustainability** of the nuclear sector. **Christian Di Lizia** added that **France** will need to fill **100,000 new positions** for its nuclear projects over the next decade, while **Karel Katovský** observed a renewed interest in **nuclear engineering among Czech students. Public support** was another recurring theme, with speakers emphasizing the need for **transparent communication and education** to build **trust** and **acceptance**.

Regulatory harmonization and policy stability emerged as key enablers for nuclear development. The speakers agreed that **long-term**, **consistent policies** are necessary to attract **investment** and support project timelines. They also stressed the importance of balancing **immediate deployment of proven technologies** with continued research into **advanced reactors** and **SMRs**.

Panel II. Transition: Changes in Central Europe's Gas Market



Chair:

Richard Kvasňovský, Executive Director, Slovak Gas and Oil Association

Speakers:

Agata Łoskot-Strachota, Senior Fellow, Centre for Eastern Studies (OSW)

Csaba Marosvári, Deputy State Secretary for Energy Security of Hungary

Rastislav Ňukovič, General Director, eustream

Juraj Paluš, Associate, Taylor Wessing







The panel, moderated by **Richard Kvasňovský**, delved into the transformations within Central Europe's gas market, focusing on the expiration of the **Ukraine-Russia gas transit contract** at the end of 2024. The panellists provided an overview of the **geopolitical**, **legal**, **and economic implications** of this development and discussed **regional responses** to ensure **energy security** amid growing uncertainties.

Csaba Marosvári set the stage with an overview of the systemic changes in **Central Europe's gas supply infrastructure**. He traced these developments back to **2019**, highlighting significant milestones such as the commissioning of **TurkStream** and **Balkan Stream pipelines**, which enabled Hungary to diversify its gas supply routes. He emphasized that **Hungary's investments** in alternative supply sources, such as the **Krk LNG terminal in Croatia**, have made the country resilient to **disruptions in Ukrainian transit**. This **diversification strategy**, he argued, shields Hungary from potential crises, allowing it to source gas from the south through **Turkey, Croatia**, **and Serbia**.

He further criticized the European Commission's policies, specifically the restrictions on fossil fuel funding under the Green Deal. He argued that while the EU's focus on decarbonization is essential, the region cannot afford to neglect investments in natural gas infrastructure, which remains a cornerstone of energy security. He pointed out that bottlenecks in pipeline capacity and insufficient public funding hinder regional energy integration and warned that without a pragmatic approach to energy policies, the region risks higher prices and reduced competitiveness.

Rastislav Ňukovič provided insights into **Slovakia's evolving role as a transit hub. Slovakia** has historically been a key conduit for **Russian gas to Europe**, with annual transit volumes exceeding **60 billion cubic meters (bcm)** before 2022. However, these flows have plummeted to just **16 bcm today**, the majority if which is **Russian gas**. Despite the decline, **Mr. Ňukovič** argued that **Slovakia is well-prepared** to manage the challenges. He outlined the country's extensive **interconnection network** with neighbouring states, including **Poland and Hungary**, as well as **six diversification contracts** signed by Slovak gas companies. These contracts now cover **50% of Slovakia's demand** and include agreements with suppliers like **Azerbaijan**.

He also advocated for the **continuation of Russian gas transit through Ukraine**, citing several benefits. First, it generates substantial revenue for **Ukraine**, amounting to approximately **€700-800 million annually**, which supports the maintenance of its gas infrastructure. Second, he noted that the transit infrastructure itself might become a target for **missile strikes** if it ceases to be operational, exacerbating instability in the region. Lastly, maintaining transit would stabilize **gas prices across Europe**, as the loss of Ukrainian routes could lead to **price spikes** and **liquidity challenges** in the market. He concluded that ending **Russian transit** abruptly would not only impact **Ukraine** but also have **far-reaching effects** on **Europe's energy security** and economic stability.

Agata Łoskot-Strachota offered a broader geopolitical perspective, focusing on Poland's efforts to achieve full independence from Russian gas. She described how Poland invested in infrastructure projects such as the Baltic Pipe and LNG terminals, which allowed it to stop Russian gas imports entirely in 2022 and explained that these diversification efforts had been decades in the making, driven by Poland's strategic goal to reduce dependence on Russian energy supplies. She pointed out that while Poland's independence came at a cost, it has paid off in terms of energy security and resilience.

She also addressed the risks associated with continuing **Russian transit**, particularly its potential for **energy weaponization**. She warned that continued reliance on **Russian gas** could expose **Central Europe** to **sudden supply disruptions**, either due to political decisions or infrastructure attacks. Moreover, she highlighted the **moral dilemma** of funding an **aggressor state** during the ongoing war in **Ukraine**. She argued that continued transit could also discourage much-needed **investments in alternative energy sources** and **infrastructure**. Juraj Paluš provided a legal analysis of the challenges associated with gas transit disruptions. He discussed the potential for arbitration and compensation claims if the Ukraine-Russia transit contract is breached. He acknowledged that while Slovakia has made strides in diversifying its supply sources, its heavy reliance on Russian gas left it more vulnerable than countries like Poland, which had prepared for independence years in advance. He emphasized the importance of strategic risk management and long-term planning to avoid similar vulnerabilities in the future. He also noted the complexity of navigating existing long-term contracts with Gazprom, suggesting that Slovakia may need to explore alternative legal and commercial arrangements to ensure supply continuity.

The panellists agreed on the importance of **regional cooperation**, diversification of supply sources, and investment in infrastructure to enhance Central Europe's energy security. While acknowledging the challenges of phasing out Russian gas, they emphasized the need for pragmatic and collaborative approaches to address geopolitical risks, infrastructure bottlenecks, and market vulnerabilities. The discussion underscored the urgency of aligning short-term strategies with long-term goals to build a resilient and sustainable energy system for the region. Special Session: Poland's EU Council Presidency: Energy and Climate Priorities



Chair:

Eva Mihočková, Editor in Chief, zahranicnapolitika.sk (SFPA)

Speaker:

Krzysztof Bolesta, Secretary of State, Ministry of Climate and Environment of the Republic of Poland

The special session focused on the **key energy and climate priorities that Poland** intends to advance during its EU Council Presidency starting in January 2025. **Eva Mihočková** anchored the discussion on how Poland will strike a balance between energy security, sustainability, and economic competitiveness, while also reflecting on lessons learned from the ongoing war in Ukraine and its implications for European energy policy.



Krzysztof Bolesta outlined three main priorities in the energy sector: **competitiveness**, **energy security**, **and support for Ukraine**. He stressed that the EU faces new challenges in energy markets, namely high prices and growing dependence on non-EU technologies. Despite the perception that the energy transition is costly, he emphasized that **renewables**, given proper market reforms, will drive down prices. The current market design allows volatile fossil fuels to be an electricity price setter which prevents consumers from fully benefiting from the cost advantages of wind and solar power. A more suitable market design, he argued, would harness

renewables to enhance Europe's competitiveness.

Energy security emerged as a particularly sensitive issue. **Mr. Bolesta** highlighted that the Russian invasion of Ukraine underscored the strategic vulnerability of relying on a single supplier. Beyond the simple matter of switching fuels or routes, **today's energy security concept must also include resilience against physical sabotage and cyberattacks**; Modernizing grids, reinforcing interconnections, and strengthening cybersecurity frameworks are all critical steps in this process. He suggested learning from Ukraine's experience, where distributed renewable energy sources have helped maintain electricity supply under extreme conditions. This decentralized approach enhances resilience and safeguards critical infrastructure against both physical destruction and digital incursions.

Support for Ukraine was identified as a core priority as well. Poland intends to maintain the momentum of the EU's RePowerEU program, a package aimed at phasing out imports of Russian fossil fuels. **Mr. Bolesta** stressed the importance of setting a **clear end-date for the complete phaseout from Russian energy**. While some countries still rely on Russian supplies, Poland demonstrated it can be done, having invested in LNG terminals and pipeline networks. These efforts turned Poland into a gas hub, capable of supporting diversification in neighbouring countries. Such solidarity, the State Secretary argued, is paramount for ensuring Europe's strategic autonomy and preventing energy from being wielded as a geopolitical weapon.





Turning to climate issues, **Mr. Bolesta** noted three main environmental priorities: **strengthening climate adaptation, advancing a clean industrial deal, and combating climate misinformation.** Although the EU has historically placed a strong emphasis on reducing emissions, the increasing frequency of climate-related disasters makes adaptation efforts more urgent. Preparation for floods, droughts, and extreme weather events must complement emissions cuts to ensure long-term societal resilience.

Meanwhile, a "clean industrial deal" involves rethinking Europe's approach to technology, innovation, and production to maintain global competitiveness. The State Secretary suggested that robust carbon border measuressuch as extending carbon tariffs to more sectors-could be necessary to prevent "outsourcing" emissions to regions with weaker standards. This would help keep European industries viable as they decarbonize.

Finally, **tackling climate misinformation** is a crucial aspect of the Polish Presidency agenda. As climate and energy policies become more ambitious and complex, disinformation campaigns are growing, creating misleading narratives that undercut public support and stall the energy transition. Poland aims to foster more transparent communication and clearer narratives, ensuring that citizens understand the long-term benefits and justifications of the shift toward renewable energy and comprehensive climate action.

Panel III.

Energy Policy of the Slovak Republic: Review by the International Energy Agency



Chair:

Artur Bobovnický, Director of the Innovation and International Cooperation Section, Slovak Innovation and Energy Agency

Keynote speaker:

Mary Burce Warlick, Deputy Executive Director, International Energy Agency

Speakers:

Kieran McNamara, Policy Analyst, International Energy Agency

Alena Žáková, Director of International Relations in the Energy Sector, Ministry of Economy of the Slovak Republic

The panel outlined and discussed the findings of the **International Energy Agency's (IEA)** review of Slovakia's energy policies. It provided insights into the country's progress in transitioning to a low-carbon energy system while highlighting key challenges and opportunities for improvement.





Mary Burce Warlick congratulated Slovakia for reducing **CO**₂ **emissions** by **40% since 1990**, which at the is mostly attributable to the large and growing share of nuclear electricity generation, now well over 80%. At the same time, she emphasized the need to accelerate efforts in sectors like **buildings** and **transport**, which continue to lag behind.

She highlighted the preparation of the draft national act on climate change, a proposal that would formalize Slovakia's commitment to achieving **net-zero emissions by 2050**. She stressed the importance of implementing this legislation to provide a clear legal framework for long-term climate goals. In order to address Slovakia high dependency on **natural gas (23% of the energy supply)**, she recommended setting clear targets to reduce gas consumption and diversify supply sources, which will strengthen **energy security**.

Fiscal policy also emerged as a key focus area. **Ms. Warlick** noted **carbon taxation in the Slovak Republic does not reflect the carbon content of fuels**, and fossil fuel prices do not encourage a behavioural shift towards lower--emission and more efficient options. Furthermore, she pointed that the challenges posed by high energy prices during the 2021–2022 energy crisis led to temporary price caps. She recommended phasing out such measures and adopting targeted support mechanisms to protect vulnerable consumers while strengthening market efficiency.

She also pointed out that Slovakia's **public building renovation is lagging behind the annual renovation rate** required by the European Commission, tracing it to the lack of a centralised data collection system for state-owned and central government buildings, which makes it almost impossible to set accurate targets. She also emphasized that the **clean energy sector is facing** a **shortfall of qualified workers**, which requires reskilling of the current labour force, revamped training programmes for young professionals in new trades and, if necessary, importing skilled workers from abroad. **Kieran McNamara** provided additional insights into Slovakia's decarbonization challenges. He emphasized the importance of adopting **sector-specific strategies**, such as those seen in Sweden, where industries align their operations with national climate goals. He also highlighted the critical need for **renewable energy expansion**, particularly in **solar PV** and **wind**, areas where Slovakia has underperformed compared to other European nations.

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The discussion also focused on the modernization of **grid infrastructure. Kieran McNamara** emphasized the need for improved grid capacity and integration of distributed renewable generation. He called for **streamlined permitting processes** and better coordination between **TSOs** and **DSOs** to reduce delays and attract private investment.

Alena Žáková acknowledged the need for strategic reforms in the energy sector. She highlighted Slovakia's plans to expand its **nuclear capacity** by adding **1.7 GW by 2040**, the bedrock of the country's decarbonisation plan. She also discussed government initiatives aimed at promoting **heat pumps** and energy efficiency measures including improving **building insulation** to reduce gas consumption in the residential sector.

The panel discussion addressed the growing importance of workforce developments, particularly in the **nuclear energy sector. Kieran McNamara** emphasized the need for robust training programs to address shortages of skilled workers, pointing to examples from countries like **South Korea**, which have implemented comprehensive workforce initiatives.

The session concluded with a discussion on Slovakia's preparedness for **increased electrification** and the integration of **variable renewable energy sources. Kieran McNamara** highlighted the need for greater investments in **energy storage**, **demand-side management**, and **digitalization** to enhance grid flexibility. The panellists emphasized the importance of **collaboration** among government bodies, industry stakeholders, and local authorities to ensure a cohesive energy transition.







Panel IV.

Presentation of the World Energy Outlook



Chair:

František Ružička, Ambassador, Permanent Representative of the Slovak Republic to the OECD

Speaker:

Mary Burce Warlick, Deputy Executive Director, International Energy Agency

Mary Burce Warlick began the presentation of the IEA's World Energy Outlook (WEO) report by pointing out its growing influence in shaping global energy policies, especially during crises such as the COVID-19 pandemic, the Russian invasion of Ukraine, and ongoing climate challenges. František Ružička reiterated the critical global energy trends and their implications for energy security, climate change, and economic development.





WEO revealed that while geopolitical risks remain high, market balances for oil and natural gas are easing. Mary Burce Warlick explained that oil producers now hold between 5 and 6 million barrels per day of spare capacity, signalling a well-supplied market. Natural gas markets are similarly well supplied, with new LNG capacity set to come online by the late 2020s. However, she warned that this oversupply might not fully shield markets from disruptions, especially in critical areas like the Strait of Hormuz, a major maritime chokepoint in the Middle East, where geopolitical tensions could threaten stability.

She also addressed the surge in **solar PV manufacturing capacity**, which has outpaced deployment rates, creating a surplus in the market. Over the past five years, **solar PV deployment** has quadrupled, while manufacturing capacity has grown sixfold. Similar trends were observed in battery manufacturing, with both sectors now facing underutilized production. These developments indicate an **intensely competitive market**, potentially driving down prices, though vulnerabilities remain in supply chains dominated by a few countries, notably **China**.

Turning to oil demand, **Ms. Warlick** pointed to a shift in the global landscape. Since 2010, **China** has been the main driver of oil demand growth, but its transition to **electric vehicles (EVs)** is changing the dynamics. By 2035, **India** is projected to lead global oil demand growth, while **EV adoption** is expected to cut oil demand by **6 million barrels per day** by 2030, solidifying a peak in demand by the end of this decade.

Meanwhile the WEO warned of potential supply constraints for **critical minerals** used in batteries and electrification infrastructure, particularly for **copper**, which is lagging behind projects in other battery metals like **lithium, cobalt, graphite** and **nickel**. The concentration of supply chains in **China**, which dominates production and processing, was highlighted as a major vulnerability. The IEA calls for investments in **mining and refining**, increased **recycling efforts**, and innovations to use fewer critical materials as **resilience and diversity remain key to ensure energy security keeps pace with the energy transition**.





Ms. Warlick emphasized the ongoing transition to a more electrified energy system. Since 2010, global electricity demand has nearly doubled the pace of total energy demand, driven by growing consumption in light industries, electric vehicles, and cooling systems. WE0 projected that by 2035, global electricity demand will rise by an additional 2,000 terawatt-hours, equivalent to the combined consumption of India and Korea. The report also highlighted the growing reliance on renewable energy sources, particularly solar PV and wind, which are now the cheapest forms of electricity generation in most markets.

However, the WEO makes clear that the expansion of **renewables** and **electrification** is insufficient to meet the **Paris Agreement goals** without accelerated policy action. The **COP28 outcomes**, which include commitments to triple renewable capacity and double energy efficiency by 2030, were recognized as critical milestones, although significant gaps remain. The IEA emphasized the need for investments in **grid infrastructure**, with **25 million km** of grids required by 2030, along with a tenfold increase in energy storage capacity.

Addressing audience questions, **Mary Burce Warlick** highlighted the IEA's focus on diversifying supply chains for critical minerals and promoting **international cooperation**. She discussed the importance of ensuring a **just transition** by addressing the economic and social impacts of energy transformations. The IEA has launched initiatives to support job creation in clean energy sectors and enhance **access to electricity** and **clean cooking fuels** in emerging economies, particularly in **Sub-Saharan Africa**.

Ms. Warlick stressed the importance of international collaboration to achieve net-zero goals by 2050. She highlighted the progress in renewable energy deployment and the potential for emerging technologies like small modular reactors (SMRs) in nuclear power. While challenges remain, the IEA is optimistic about the global energy transition, provided that nations stay committed to ambitious targets and effective policy frameworks.

Panel V. Powering the Future: Modernizing Electricity Networks for a Successful Energy Transition



Chair:

Maciej Jakubik, European Programme Coordinator, Forum Energii

Speakers:

Lívia Vašáková, Director, Corporate Development and Public Affairs, ZSE Group

Andrej Juris, Head of ECRB Unit, Energy Community

Martin Pitorák, Director, Department of Fuels and Energy, Ministry of Economy of the Slovak Republic

Maciej Jakubik addressed the pivotal role of electricity grids in facilitating a successful energy transition. The discussion focused on the modernization of electricity networks, highlighting the importance of digitization, investment, and flexibility to support the integration of renewable energy sources and electrification across all sectors of the economy.





Lívia Vašáková opened the panel by emphasizing the paradigm shift in energy transition policy. Drawing from her extensive experience in European energy policy, she noted that investments in grids were previously overlooked but have now become a central focus at the highest policymaking levels, including the European Council. She highlighted the critical need for **"smartification" and densification** of grids to support the increasing demand for electricity, which is projected to rise from **20% to 60%** of total energy use.

She discussed the changing nature of electricity flows, moving from a one-directional system to a more dynamic model that accommodates **prosumers**, electric vehicles, and large-scale heat pumps. She argued that without significant investments in transmission and distribution networks, the electrification of transport, heating, and industry would falter. She also addressed the financial challenges, noting that while grid investments are currently funded internally and reflected in tariffs, this approach risks burdening electricity prices and undermining affordability. She advocated for increased EU funding through instruments like the **Connecting Europe Facility** and the **Recovery and Resilience Facility**, citing their successful application in Slovakia.

Turning to the permitting process, **Ms. Vašáková** stressed the need for **streamlined environmental impact assessments** and supportive regulations to accelerate grid modernization. She emphasized that investments must not only meet current demand but also anticipate future needs, ensuring resilience in the face of climate change-induced challenges such as heatwaves and floods.

Martin Pitorák provided a government perspective, underscoring the scale of investment required for grid modernization. He highlighted the success of Slovakia's ACON and Danube InGrid projects, which serve as examples of innovative cross-border smart grid projects funded through European initiatives. He noted that these efforts have positioned Slovakia as a leader in grid innovation.

He emphasized that the bulk of future investments must target low-voltage distribution networks, where most electrification demands occur. He pointed to the European Action Plan for Grids, which calls for 70% of grid investments at the distribution level. Addressing the financial implications, he revealed that Slovakia's grid operators could absorb up to **€1 billion in investments** by 2030, stressing that relying solely on tariffs to fund these projects would lead to unacceptable electricity price increases. Instead, he called for a greater role for the Modernization Fund and other EU mechanisms to finance these efforts. Finally, he also touched on the importance of localization in grid development. He explained that integrating renewable energy sources close to consumption points minimizes the need for costly infrastructure and enhances efficiency.

Andrej Juris focused on the regulatory and technical challenges of modernizing electricity grids. He highlighted the evolution of grids from traditional one-directional systems to dynamic, multi-directional networks that must accommodate a growing number of active consumers, energy communities, and battery operators. He stressed the importance of developing flexibility mechanisms, such as demand response, to balance supply and demand effectively.

Drawing on findings from **Eurelectric** and the **European Commission**, he underscored the urgent need for smart meters, which enable precise consumption and generation data collection. While **50-60% of European consumers** currently have smart meters, significant gaps remain, hindering the development of dynamic pricing and demand-response programs. He also highlighted the projected need for **tripling renewable generation capacity** by 2050 to meet climate goals, with **10% of all investments** required for grid infrastructure.

Mr. Juris emphasized that innovative approaches, such as **anticipatory investments** and **advanced grid technologies**, can maximize the use of existing infrastructure, reducing the need for new construction. He noted that such methods could release up to **40% of existing** **grid capacity**, facilitating the integration of renewables and new consumers without significant additional costs. However, he cautioned that these innovations require supportive regulatory frameworks to ensure their widespread adoption.

The panel also addressed the critical issue of **permitting delays**, which remain a significant obstacle to grid modernization. **Lívia Vašáková** and **Martin Pitorák** both stressed the need for public trust and transparent communication to overcome resistance to infrastructure projects. **Martin Pitorák** called for clear demonstrations of the benefits of grid investments to local communities, particularly at the low-voltage level, where most changes will occur.

On the topic of **cybersecurity**, **Andrej Juris** compared smart grids to mobile banking systems, noting that both rely on robust data protection and resilience against cyber threats. **Lívia Vašáková** added that her company conducts regular **cybersecurity training and simulations** to prepare for potential attacks, including testing offline grid operations. She also reiterated the importance of leveraging a diverse range of EU funding mechanisms while avoiding over-reliance on tariffs. She also called for increased allocations to existing instruments, such as the **Modernization Fund**, and greater collaboration between DSOs, TSOs, and governments. **Andrej Juris** highlighted the role of regulators in incentivizing grid operators to adopt innovative technologies and optimize existing assets.

Panel VI. Monitoring the Climate Course: Insights from COP 29



Chair:

Kateřina Chajdiaková, Director, Slovak Climate Initiative

Speakers:

Šimon Lacena, Director, Climate Change Mitigation Department, Ministry of Environment of the Slovak Republic

Tibor Lindovský, Climate Finance and Policy Specialist, UN Climate Change

Kostantsa Rangelova, Global Electricity Analyst, Ember

Tibor Schaffhauser, Senior Climate Policy Advisor, Green Policy Center

Thea Uhlich, Policy Advisor, Germanwatch

Kateřina Chajdiaková opened by asking the experts to reflect on the outcomes of COP 29 and to consider how these results might influence future global and regional climate action.







Šimon Lacena focused primarily on the difficulty of achieving any form of consensus among almost 200 countries. Despite fierce debates, there were some positive finance-related outcomes. COP 29 di managed to produce an agreement on a new, quantified collective goal for climate finance from developed to developing countries. He noted that, from the EU perspective, even this imperfect result was better than no result at all. He observed that the final number agreed upon to be allocated to climate change, \$300 billion per year by 2035, remained controversial, with many developing countries dissatisfied. Indeed, the meeting had witnessed the dramatic departure of some 49 countries from the negotiating room at one point, an incident underscoring deep tensions. He added that mitigation outcomes were less ambitious than hoped, feeling that the so-called "Mitigation COP" turned out somewhat disappointing in this regard.

Thea Uhlich expressed her own disappointment with the COP 29 results. She believed the outcomes fell far short of what was needed, stressing that language in the negotiated texts had not advanced much beyond what had already been established the previous year. She underlined the importance of stronger, clearer language on fossil fuel phase-out and more robust commitments. She highlighted that the real measure of success should be how climate talks improve conditions for vulnerable communities facing climate impacts. She found it sobering that the best the world could celebrate was that an outcome was reached at all, but she insisted that civil society and observers must keep pressing for more ambitious and urgent measures.

Tibor Lindovský explained how consensus-based decision making at COP makes achieving any agreement an achievement in itself, comparing the process to complex legal negotiation involving multiple lawyers and stakeholders. He also pointed out that while the \$300 billion figure is inadequate from many countries, it still represents a threefold increase over previous commitments. He also **noted that private sector engagement would be crucial going forward**, since neither public financing alone nor government commitments would be sufficient to meet enormous needs. According to him, the COP outcomes, even if imperfect, send **important signals to the global market**, encouraging both countries and businesses to move toward cleaner technologies.

Kostantsa Rangelova contributed a data-driven viewpoint. She contextualized the \$300 billion figure in global terms, noting that it equalled roughly 45 days of global military spending or about 40 days of what the world spends on crude oil. She explained that while the official climate finance commitment might seem underwhelming, actual global investments in clean technologies are already surpassing two trillion dollars per vear. She emphasized that wind and solar energy, in particular, have been scaling up at remarkable rates, meeting a large share of new electricity demand growth and edging out what would otherwise be fossil fuel expansion. The crucial next steps involve **tripling renewable** capacity and doubling energy efficiency worldwide to remain on track for net-zero emissions by 2050. Although the COP outcome was modest, she considered it encouraging that parties left with a clearer understanding of the scale of the problem and what measures must be accelerated.

Tibor Schaffhauser noted that from the European viewpoint, the outcome remained inadequate on mitigation. He stressed that without deep emission cuts, finance and adaptation measures alone would never catch up to the worsening impacts of climate change. Yet he also recognized that finalizing some measure of climate finance and preserving a spirit of multilateral coopera**tion** amid shifting geopolitical and economic pressures was itself valuable. He reminded everyone that the next year would be critical: countries must update their national determined contributions by early 2025, and these will show the world whether major emitters are ready to step up and close the emissions gap. He underscored that global climate diplomacy is partly about sending signals to businesses, civil society, and local governments, all of whom play a pivotal role in pushing the global transition forward.





The speakers addressed questions from the audience and several themes emerged. One was the tension between diverting resources to adaptation and mitigation, with one possibly undermining the other. The panellists uniformly emphasized that **adaptation is inevitable since** climate impacts are already occurring. At the same time, there was wide agreement that failing to reduce emissions would render adaptation insufficient in the long run. The discussion also touched on the **role of civil** society organizations, which were acknowledged as critical in pushing governments and negotiators to be more ambitious, providing expert insights on financial mechanisms, and holding policymakers accountable.

Another question concerned the importance of transparency and monitoring. The speakers reaffirmed that mechanisms established under the Paris Agreement, such as the Enhanced Transparency Framework and the Global Stocktake, would help evaluate whether countries are meeting their pledges. Over time, these reporting and review processes can reduce mistrust and allow for more informed decision making. There was also interest in how to mobilize the private sector more effectively, given that public funds will never meet the total investment needs for a global clean energy transition. The panellists agreed that the COP texts send signals that can improve the risk perception of climate compatible investments and that public policies, such as carbon pricing or the establishment of stable regula**tory frameworks**, are crucial for encouraging private capital to flow into sustainable projects.

The speakers expressed frustration with the slow pace of progress, there was also a sense that incremental steps, even if unsatisfying, keep the global community moving forward. The panellists remarked that the complexity of geopolitics, economic rivalries, and domestic constraints made every fraction of an agreement hard-won. They underscored that citizens' support and understanding are essential for maintaining political will. If electorates in developed countries do not comprehend the necessity of climate finance for developing countries, making ambitious pledges will remain politically challenging.

Panel VII.

Wind Energy: Environmental and Community Solutions for Wind Energy Success



Chair:

Oldřich Sklenář, Research Fellow, AMO

Speakers:

Viktor Bukovszki, Senior Consultant, Advanced Building and Urban Design

Ján Lacko, Member of Executive Committee, Slovak association of sustainable energy (SAPI)

Thomas Podlesak, Director, WEB Windenergie AG





Oldřich Sklenář framed the discussion on how to **accelerate wind energy deployment** while ensuring environmental safeguards, community participation, and just economic benefits for local stakeholders. He also addressed why Central European countries have lagged in wind energy development and how inclusive solutions can help overcome these barriers.

Viktor Bukovszki emphasized that community engagement should not be seen as a mere add-on, but as a core strategy to drive wind power's social acceptance, reduce local resistance, and ensure broader environmental benefits. He listed seven reasons to rely **on energy communities for wind energy success**: lowering local opposition, delivering tangible economic benefits to rural regions, ensuring justice by including those most affected, catalysing additional environmental action as communities gain deeper awareness, alleviating municipal budget strains by localizing investment, encouraging dividends to be reinvested into social projects, and creating more resilient, risk spread projects.

Ján Lacko provided insights into Slovakia's situation, stressing that despite widely held beliefs, there is indeed exploitable wind potential in Slovakia, with studies showing that up to 20% of Slovakia's territory is suitable for wind installations. After a long period of stagnation-nearly fifteen years without any serious developments-there has recently been increased interest in investing into Slovak wind energy, with about €1.4 billion poured into wind projects under development. While he acknowledged that the environmental impact assessment (EIA) process can be lengthy and complex, he was optimistic that upcoming legislative amendments and streamlining efforts, including the creation of socalled acceleration zones, would ease the regulatory burden. He concluded that greater community engagement will be paramount in securing social acceptance for these new projects.

Contributing a cross-border perspective, **Thomas Podlesak** drew on experiences from Austria and other international markets to illustrate how transparency, communication, and local benefits are essential for wind



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energy's long-term viability. With WEB Windenergie AG Active in several countries, he observed that **gaining trust from municipalities and residents often means showcasing operational wind farms firsthand**, explaining turbine technology, mitigating concerns about noise, or visual impacts, and offering direct financial or inkind benefits to local communities. Although current approval processes can be slow due to unfamiliarity and a lack of previous wind developments in certain jurisdictions, he expressed optimism that improvements in permitting, and the availability of best practices would accelerate wind deployment in Slovakia and neighbouring countries.

One key idea highlighted during the panel discussion was that effective community participation is not a onesize-fits-all measure, **developers must tailor their approaches to local contexts**. Trust building measures include providing opportunities for community members to invest as shareholders, instituting community funds tied directly to wind production, or offering preferential electricity tariffs. The panellists gave examples of European countries, such as **Denmark**, where partial community ownership has significantly boosted public support and accelerated wind energy proliferation.

A frequently mentioned concern was the **lengthy and complex nature of environmental impact assessments**, but the panellists noted ongoing reforms aimed at predictability, standardization, and methodological clarity. They pointed out that EIA is crucial not only for ensuring that sensitive habitats and species are protected through robust avoidance and mitigation strategies but also for fostering trust. If communities see that proper due diligence has been applied and that developers have chosen sites with minimal ecological disturbance, they are more likely to lend support to the project.

In response to queries on **disinformation and public scepticism**, the experts agreed that well-structured communication strategies are critical. Misinformation can spread rapidly, whether it concerns exaggerated noise levels, visual impacts, or fears that turbines cannot be recycled. Clear, fact-based explanations such as noting that up to 90-95% of turbine materials, especially steel, can be recycled help communities understand that wind power projects can be built, operated, and eventually decommissioned responsibly. Panellists stressed that informing local communities early, conducting opendoor consultations, and transparently sharing studies on ecological impacts or health aspects are essential steps to counter disinformation.

Another area of emphasis was the role of municipalities in co-governance. Municipalities can collaborate to form local energy cooperatives or influence zoning and land use planning to identify the best sites for wind farms. By **proactively designating "acceleration zones" for wind**, authorities can streamline permissions and create more stable investment climates. Municipal level utilities can play a pivotal role, aligning local energy needs with renewable inputs, thereby reducing overall project risk and complexity.

The panel also addressed **how wind energy can be complimentary with other renewables to optimize land use and grid capacity.** If properly planned, combining wind with solar installations allows more consistent output and more efficient use of grid connections. Pairing wind farms with battery storage solutions or other flexibility tools can improve reliability and reduce curtailment. Such hybrid projects not only stabilize energy supply but also strengthen local resilience against external energy price shocks.

The broader **supply chain and material dependencies** were another topic of interest. With parts often sourced globally, unforeseen delays, such as shipping disruptions, can stall projects. The panellists explained that, while Eastern Asian markets often supply cheaper components, fluctuating transport costs and supply chain vulnerabilities push developers to consider European manufacturers. Ensuring a diversified supply chain and encouraging domestic or regional production capabilities can decrease reliance on distant suppliers, leading to more stable project timelines.

Concluding Remarks



Veronika Oravcová, Director of the Central European Energy Conference and Analyst at the Slovak Foreign Policy Association, thanked all the partners, speakers and the organising team.

She highlighted three main conclusions from the panel and roundtable discussions. Firstly, decarbonizing the energy sector remains a significant challenge, and governments must invest taxpayer money wisely. This applies to all the investments and subsidy schemes in renewable energy, interconnections, building renovations, and large-scale projects like nuclear sites, emphasizing the need for strategic public support to foster cross-border collaboration. Secondly, political leadership is crucial for the green transition but is missing and fragmented across Europe, especially concerning natural gas supplies, the ban on internal combustion cars, and decarbonization in agriculture. Moreover, many political groups are calling to reconsider Green Deal policies. Finally, discussions on wind and geothermal energy, energy poverty, building renovation and local and regional collaboration underscore the importance of engaging local authorities in shaping future energy systems and ensuring a successful green transition. Such cooperation and knowledge sharing is of a great importance to successful energy transition.





Special Presentation: Energy Poverty and Gender: Who Bears the Burden of the EU's Cost of Living Crisis?



Speaker

Mariëlle Feenstra, Co-Founder and Scientific Director, 75inQ

Mariëlle Feenstra highlighted the underappreciated yet increasingly critical issue of how Europe's cost-of-living and energy crises disproportionately affect women. With energy prices surging across the EU, longstanding economic and social gender inequalities have intensified the struggle for women to keep their homes warm, safe, and habitable.

Her message was clear: viewing households as genderneutral units obscures the reality that women often carry a heavier economic and caregiving burden, which can severely limit their ability to absorb rising energy costs. This disparity is particularly visible among single mothers, elderly women living alone, and women in rural areas. **Many women, especially the elderly, remain** "invisible" in official statistics. They may pay their energy bills on time but at the expense of living in only one heated room, tolerating uncomfortable conditions, or relying on outdated and inefficient heating methods.

The data **Mariëlle Feenstra** shared brought these challenges into focus. Even though **energy poverty definitions vary widely across EU member states**, a clear pattern has emerged: female-led households, especially those caring for dependents, face a higher risk of falling into energy poverty. Pension gaps, caregiving responsibilities, and lower financial resilience mean that when energy prices spike, women often shoulder a disproportionate share of the hardship.

When asked about potential solutions, she **emphasized that one-size-fits-all policies miss the mark**. Instead, policymakers should adopt a more nuanced, intersectional approach. Tailored interventions, such as targeted subsidies for energy efficiency upgrades, personalized energy advisory services, and stronger local support networks, could help ensure that investments in clean, sustainable energy solutions reach the most vulnerable. Building trust at the local level and engaging social workers, community groups, and even religious institutions could bridge awareness and support gaps. For elderly women living in over-sized, poorly insulated homes, it might mean focusing on upgrading just one or two rooms rather than attempting a costly, full house retrofit.

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Crucially, **Ms. Feenstra** reminded the audience that the path to a just energy transition hinges not only on supporting disadvantaged consumers but also on increasing women's representation among energy professionals and policymakers. **Despite ongoing shifts to renewables and the creation of green jobs, women remain dramatically underrepresented in the sector,** holding just around 20% of these jobs, and an even smaller share of managerial positions. Greater gender diversity throughout the energy industry and policymaking spheres would lead to more inclusive policies that recognize and address the unique challenges women face.



Luncheon Session– Roundtable Discussion:

Making the Green Deal Relevant and Engaging in Central Europe



Chair:

Zsolt Gál, Assistant Professor, Comenius University in Bratislava

Speakers:

Agata Łoskot-Strachota, Senior Fellow, Centre for Eastern Studies (OSW)

Veronika Oravcová, Researcher, Comenius University in Bratislava and Slovak Foreign Policy Association

Oldřich Sklenář, Research Fellow, AMO

Borbála Takácsné Tóth, Senior Analyst, Regional Centre for Energy Policy Research

The V4 Energy Think Tank Platform (V4ETTP) luncheon roundtable provided an insightful forum for experts and analysts from the Czech Republic, Hungary, Poland, and Slovakia to explore ways of making **the European Green Deal resonate with the general public in Central Europe.** The conversation was candid, reflecting the complexities and evolving dynamics of the region's energy and climate landscape.





Several participants began by noting that the **Green Deal**, a flagship EU initiative that enjoyed wide popularity across European capitals, is **now being challenged by a series of global and regional crises** that are raising costs for households and businesses. Considering these challenges, the positive narrative around the Green Deal has somewhat faded. Analysts emphasized that in Central Europe public and political focus often shifts to short-term affordability and security concerns, overshadowing the longer-term imperatives of decarbonization and sustainability.

Nonetheless, everyone agreed that the overall transition to a cleaner, more sustainable energy system is not in question. Rather, the challenge is adapting the Green Deal to local conditions, economic structures, and energy mixes. **Central European countries have distinct energy legacies**, such as coal-heavy industries and energy-intensive manufacturing. Thus, a one-size-fits-all approach from Brussels may feel disconnected or even threatening. Tailored policies and allowing for flexible pathways – as one participant said "many pathways, one goal" – could be the way forward. Such flexibility would allow countries to choose the most suitable technologies and transition trajectories without losing sight of the overarching 2050 climate neutrality objective.

The discussion highlighted that the **energy transition in Central Europe is much more than decarbonization**, but equally ensuring energy security, affordability, and industrial competitiveness. While the EU's regulatory framework rightly prioritizes climate action, participants noted that recent crises have underscored the importance of security of supply and stable pricing. If the **Green Deal** is to remain politically viable and socially acceptable, it **must integrate robust mechanisms to address economic fears**, particularly job losses, deindustrialization, or reduced competitiveness. This is especially salient in the V4 countries, where industry accounts for a significant share of GDP and societal well-being. Speakers also stressed that **communicating tangible benefits of the energy transition** is essential. Local success stories municipalities retrofitting buildings, businesses investing in energy-efficient technologies, or households adopting clean heating solutions can demonstrate that the Green Deal does not equate to higher bills or economic decline. On the contrary, local examples can show how clean energy policies improve quality of life, reduce dependency on volatile international markets, and create new job opportunities.

Many participants advocated for **stronger cooperation at both regional and EU levels**. Within the V4, sharing best practices, co-developing joint research projects, and presenting a united voice in Brussels could amplify Central European concerns. The EU institutions, in turn, must demonstrate greater responsiveness and pragmatism. While the **long-term climate goals remain non-negotiable**, the means of achieving them must be calibrated in ways that acknowledge and accommodate Central Europe's industrial structure, existing energy systems, and technological readiness.

Lastly, the discussion recognized that energy transition is not purely an engineering exercise; it is a **socio-political challenge.** Investment in education, transparency, and stakeholder engagement, from local communities to business sectors, will be pivotal. If Central Europeans see the Green Deal as not just an EU-imposed agenda but a framework that can deliver sustainable prosperity at home, buy-in will grow.

Roundtable **Discussion I.** EPBD in Practice: The Role of Municipalities and Pilot Passports on the Path to Sustainable Renovation of Public Buildings



Chair:

Katarína Nikodemová, Director, Buildings for the Future

Speakers:

Jana Bendžalová, Energy Expert, ENBEE and Buildings for the Future

Marián Kupec, Energy Expert, Bratislava Self-Governing Region

Martina Repíková, Energy Expert, Union of Slovak Cities

The roundtable focused on the implementation of the **Energy Performance of Buildings Directive (EPBD)** in Slovakia and provided an opportunity to examine the directive's new requirements, learn from pilot renovation passports created under the **Renocally project**, and discuss strategies for advancing the sustainable renovation of public buildings. Participants included **energy experts, municipal representatives**, and other stakeholders interested in energy efficiency and climate action in the built environment.



The discussion opened with an overview of the **EPBD directive**, emphasizing its role in driving the renovation and decarbonization of public buildings. The directive introduces **renovation passports**, a tool designed to guide building owners through the process of deep renovation, ensuring energy efficiency and alignment with long-term climate goals. It was noted that the directive's adoption in Slovakia requires a proactive approach to transpose into national legislation, with an emphasis on ensuring the tool's practicality and utility for municipalities and building managers.

Participants explored the **pilot renovation passports** created for two buildings: the **Dudova Business Acade-my** and the **Rača Social Services Home.** These passports,

developed through collaboration between **energy experts** and the **Bratislava Self-Governing Region**, serve as case studies for future efforts. Each passport outlined a step-by-step plan for achieving **near-zero emissions** by 2030 and **zero emissions** by 2050, integrating recommendations for energy efficiency, renewable energy use, and system upgrades. These pilots provided valuable insights into the practical challenges and opportunities associated with implementing the EPBD at the municipal level.

One key challenge highlighted during the discussion was the **initial cost of deep renovation projects.** Participants agreed that staged renovation plans, as outlined in the passports, can help manage costs by breaking projects



into smaller, more affordable phases. However, they also emphasized the risk of **lock-in effects**, where suboptimal initial steps could limit future upgrades. Careful planning and adherence to energy efficiency principles were seen as critical to mitigating these risks.





The session also addressed the **integration of technical systems** into public buildings. The directive mandates the installation of **solar energy systems**, where feasible, and the replacement of **fossil fuel boilers** by 2025. Participants discussed the feasibility of these requirements for older buildings and emphasized the importance of flexibility in implementation to account for diverse building conditions. For example, the adoption of **solar energy systems** could be tied to roof renovations or other structural improvements, ensuring cost-effectiveness and alignment with the building's lifecycle.

Another significant theme was the need for **data-driven planning.** Renovation passports were recognized as valuable tools for providing a clear roadmap, but participants stressed that their success relies on accurate data collection and analysis. Factors such as building age, energy consumption, and climate conditions must be carefully assessed to create realistic and actionable plans. Advanced simulation models and monitoring systems were suggested as potential solutions for improving the accuracy and reliability of renovation recommendations.

The discussion also touched on the **role of funding mechanisms** in supporting renovation efforts. Participants acknowledged the financial constraints faced by municipalities and highlighted the importance of leveraging **EU funding** and **national programs** to address these challenges. Simplified application processes and targeted support for smaller municipalities were suggested as ways to improve access to available resources.

The conversation concluded with reflections on the broader implications of the **EPBD directive** for Slovakia's energy and climate policies. Participants agreed that successful implementation would require collaboration between **government authorities**, **energy experts**, and **municipal stakeholders**. They also emphasized the need for ongoing capacity-building and training for local officials and building managers to ensure effective use of renovation passports.

Roundtable **Discussion II.** Funding the Future: EU **Opportunities** for Climate Action in Municipalities



Chair:

Alexander Duleba, Head of Research, Slovak Foreign Policy Association

Speakers:

Marián Zachar, Climate Office, City of Bratislava

Soňa Andrášová, Climate Office, City of Bratislava

Adriana Šebešová, Strategic Development Dpt, City of Košice

Andriy Kyrchiv, Association of Energy Efficient Cities of Ukraine

Veronika Oravcová, Researcher, Comenius University in Bratislava and Slovak Foreign Policy Association



This roundtable focused on the critical role of municipalities in addressing climate change and driving sustainable development. Participants from **EU and Ukrainian cities** engaged in a collaborative dialogue to explore strategies for leveraging **EU funding mechanisms**, such as **Interreg** and **Horizon Europe**, and maximizing their impact on localized climate policies. The discussion highlighted the opportunities, challenges, and innovations in empowering municipalities to lead the energy transition.

The session began by emphasizing the unique role of **municipal governments** in addressing climate challenges. Mayors and local leaders were identified as pivotal players in implementing climate action at the community level, capable of tailoring solutions to the specific needs of their constituencies. Participants acknowledged the importance of municipal leadership for bridging gaps in national and regional policies, particularly for advancing renewable energy adoption, energy



efficiency, and urban resilience. Several case studies were discussed, illustrating how municipalities have effectively designed and executed climate projects that align with broader **EU climate goals**.

A central theme of the discussion was the accessibility of **EU funding** for municipalities. While programs like **Interreg** and **Horizon Europe** offer substantial opportunities for financing climate initiatives, participants noted significant barriers, including **complex application processes**, limited **technical expertise**, and inadequate resources at the local level. Many attendees called for **capacity-building programs** to assist municipalities in navigating these challenges, alongside enhanced knowledge-sharing platforms and technical support. By equipping local governments with the necessary tools and expertise, participants believed that access to EU funds could be significantly improved.

The roundtable also explored the potential of **peer-topeer learning networks** in fostering collaboration and innovation among municipalities. Participants stressed the value of sharing best practices, success stories, and lessons learned from past projects to inspire and guide future initiatives. Collaborative approaches, such as forming regional partnerships and cross-border coalitions, were highlighted as effective strategies to address common challenges and pool resources.

The issue of **energy poverty** featured prominently in the dialogue, with participants acknowledging the added strain of **geopolitical tensions** and rising energy prices. Municipal leaders shared examples of targeted interventions aimed at addressing this crisis, including **energy efficiency retrofits** for vulnerable households and the promotion of **community-driven renewable energy projects**. These initiatives not only help alleviate financial burdens on residents but also contribute to broader climate and sustainability goals. The need for **inclusive approaches** was emphasized, ensuring that all population segments benefit from the energy transition and that no community is left behind.

Visibility and impact were recurring points of discussion, with participants exploring strategies to amplify the success of municipal climate projects. Attendees stressed the importance of showcasing exemplary initiatives through **regional events**, **media campaigns**, and **public-private partnerships**. Enhancing the visibility of successful projects was seen as critical for inspiring other municipalities to replicate these models and for attracting further investment and community buy-in.

Another focus of the conversation was the integration of **social inclusion** into municipal climate policies. Participants recognized that sustainable development requires addressing not only environmental but also social and economic dimensions. Efforts to create inclusive policies that prioritize vulnerable populations and ensure equitable access to resources were emphasized. Participants highlighted examples of inclusive design leading to stronger public support for climate initiatives, underscoring its importance in achieving longterm sustainability.

The discussion also touched on the broader role of municipalities in the context of **EU-Ukraine cooperation**. Municipal representatives shared their experiences in fostering cross-border collaboration and aligning local climate efforts with **European Green Deal objectives**. The deeper integration of Ukrainian municipalities into EU climate initiatives was also supported, envisioning capacity-building and knowledge exchange to support Ukraine's energy transition goals. The roundtable concluded with reflections on the path forward for municipalities in leading climate action. Attendees reaffirmed the critical importance of **empowering local governments** through financial support, technical assistance, and capacity-building efforts. Discussion III. Hungary and Slovakia Geothermal Roundtable

Roundtable



Chair:

Nolan Theisen, Senior Fellow for Energy and Climate, Slovak Foreign Policy Association

Speakers:

Katarína Augustini, Acting Director, Institute of Economic Analyses, Ministry of Economy of the Slovak Republic

Matej Hotovčin, Department of Just Transformation, Ministry of Investments, Regional Development, and Informatization of the Slovak Republic

Roland Karko, Chairman Association for Geothermal Energy in Slovakia

Gábor Molnár, Managing Director, Arctic Green Engineering Services

Annamária Nádor, Senior Geologist, Supervisory Authority for Regulatory Affairs of Hungary (SARA)

Balázs Némethi, Head of department, Budapest Public Utilities Ltd

Martin Surán, Project Manager for Decarbonisation, ORLEN Unipetrol Slovakia

Dávid Kecskeméti, EU Affairs and International Relations Officer, Professional Association of Hungarian District Heating Suppliers (Matászsz)

This roundtable session brought together key public officials, industry representatives, and associations from Hungary and Slovakia to explore opportunities and challenges in the geothermal heating and cooling (H & C) sectors. With rising interest in reducing dependence on imported fossil fuels, especially gas, and a renewed focus on decarbonization, **geothermal energy is increasingly seen as a promising yet underutilized solution in Central Europe's energy mix**. Hungary's recent overhaul of its Mining Act was a notable starting point. The country introduced a **three-step** licensing procedure for geothermal projects that grants developers long-term exclusive rights to exploit defined "protection blocks" if their exploration is successful. This new framework, effective since March 2023, generated a surge in applications-with over 100 requests in a matter of days-demonstrating investor appetite. Crucially, Hungary has coupled regulatory reforms with financial support. From a dedicated risk mitigation fund and preferential loans for drilling, to allocated resources from the Modernization Fund. The Hungarian government's newly published geothermal strategy aims to increase the sector's role in replacing imported gas and meeting climate targets, signalling a clear policy direction.

Slovakia, while not as advanced as Hungary, has also begun mapping its geothermal potential and forging cross-ministerial collaboration. The Ministry of Economy's Institute for Economic Analyses, along with the Ministry of Investments, Regional Development, and Informatization, is working to create the first **comprehensive national analysis on geothermal energy** by early next year. Ongoing cooperation with state geological institutes, the launch of feasibility studies, and the introduction of funding from the Just Transition Fund and other EU sources pave the way for risk sharing mechanisms and simplified legislation, aiming to encourage pilot projects and scale up.

Industry players applaud Hungary's recent reforms, noting that the **new regulatory environment** provides much needed security and clarity. The ability to secure exclusive development rights reduces investor risk and incentivizes private capital to commit to exploration drilling, the most uncertain and expensive phase of the project. The availability of targeted financial tools, such as risk mitigation funds, makes projects more bankable and attractive to capital markets.

In Slovakia, there is also optimism surrounding flagship projects like the Košice geothermal initiative, which will tap into local resources to supply district heating.









Yet industry representatives underscore that **support schemes and risk-sharing instruments**, similar to those in Hungary, are urgently needed to unlock the country's potential. Better alignment between ministries, local authorities, and investors can help. Ensuring that geological data is updated and accessible will further reduce uncertainties, while commitment to robust, stable policy frameworks are critical for attracting long term investment.

Participants highlighted that geothermal integration into district heating systems could significantly reduce natural gas usage. However, challenges remain particularly balancing geothermal supply with high temperature demand in existing networks and coordinating multiple stakeholders. Municipalities, facing economic constraints, often need technical and financial support to integrate geothermal sources effectively. Improving building insulation and involving consumers in the energy transition through awareness campaigns and renovation incentives could enhance the economic viability of geothermal heating.

Several speakers stressed the **value of regional cooperation**, with Hungary's geothermal boom serving as an example for Slovakia and other Central European countries. Establishing platforms such as national geothermal clusters could streamline knowledge sharing, reduce fragmented efforts, and build a stronger collective voice to influence European Union level policy and financing mechanisms.

On the international stage, geothermal energy is gaining momentum. The U.S., New Zealand, and Canada have recently increased their R & D spending, and global finance institutions like the European Investment Bank show growing interest in geothermal projects. Participants agreed that Central European countries should leverage this global wave, positioning **geothermal as a key component of their energy security strategies.**

