



Conference *report*

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WELCOME AND INTRODUCTORY REMARKS

Welcome: Alexander Duleba

Introductory remarks: Miroslav Lajčák, Peter Žiga, Maroš Šefčovič

SUMMARY

Energy policy has gained great momentum over the past few years. By building the Energy Union, EU member states are becoming more and more interconnected and thereby share their strengths, but also their weaknesses. In an era when climate change and its effects are becoming indisputable, a common approach is needed more than ever. However, the efforts to agree on ambitious energy policy that aims to be climate-conscious elicit different responses from politicians, analysts and businessmen. Slovakia relies on nuclear power and gas and therefore manages to keep its greenhouse gas emissions relatively low. But it lags behind in expanding its share of renewables and energy friendly public buildings. There is no silver bullet, but by combining various tools and legislation we may achieve a broad consensus on energy and climate transformation.

Alexander Duleba, CEEC Director and Analyst at the Research Centre of the Slovak Foreign Policy Association, spoke of a feeling of accomplishment that the CEEC has become a vibrant platform for discussing energy policy and energy security in Central Europe and beyond. CEEC2019 hosted **300 participants** including **60 speakers** from **20 countries**, thanks to the support of its three main institutional partners.

Miroslav Lajčák, Minister of Foreign and European Affairs of the Slovak Republic, is **current chair of the Organisation for Cooperation and Security in Europe (OSCE)** while Slovakia holds the presidency. It is therefore not surprising that one of the conference panels, organised under the auspices of the ministry, was dedicated to the OSCE's role in European energy security.

Alexander Duleba also drew attention to the participation of Peter Žiga, Minister of Economy of the Slovak Republic, who attends CEEC regularly. He also thanked the ministry for its support and the expert participants who contributed to the design of the conference.

Miroslav Lajčák, Minister of Foreign and European Affairs of the Slovak Republic and OSCE Chairperson-in-Office, raised four issues in his opening speech: **energy demand and related possible solutions, the OSCE's role and the broader view of energy and equality.**

Nowadays, energy is in some ways omnipresent, and our way of life has made us fully dependent on an **energy supply that will have grown by more than 25% by 2040.** The Slovak minister underlined the impact energy has on both the global economy and security, with competition over energy sources being behind several armed conflicts.

The only effective solution is **enhanced investment in renewables, connectivity and cooperation** in a coordinated manner.



Miroslav Lajčák also argued a **common and sustainable energy transition** will help developing countries as well, since nearly one in every seven people **lacks access to electricity.**

Peter Žiga, Minister of Economy of the Slovak Republic, recognised the high standard CEEC has maintained since its launch. Moreover, he welcomed CEEC's focus on innovative renewable technologies and climate change as he considers this the great contemporary challenge facing humankind.

The Slovak minister argued that a **single action or technology cannot stop climate change.** He believes a combination of the available low-carbon technologies will be required to achieve the goal. However, it is up to every state to choose its own specific mix of low carbon measures.

Slovakia relies on **nuclear energy and that will have to remain a substantial part of its energy mix** even after 2050 if it is to achieve carbon neutrality. Today, approximately 80% of Slovak energy is produced in line with low-carbon targets in nuclear power plants and from renewable sources. Peter Žiga sees some room for improvement in increasing the **proportion of low energy buildings and other energy saving solutions.**

Maroš Šefčovič, Vice-President of the European Commission, considers the building of the Energy Union – his responsibility – to be a successful project. By 2022, **all EU member states should have three gas sources** and 23 member states will have LNG as well. He also welcomed the continuous fall in emissions which has not significantly endangered economic growth.

The Slovak commissioner wants to see further progress in the use of decarbonised energy through **smart grids and better energy interconnectivity.** He is also pushing for greater use of e-vehicles. Not just cars, but also buses, trucks and other means of transport. To this end, he considers investment and **cooperation with battery producers** such as InoBat essential. InoBat, together with Wildcat Discovery Technologies, are planning to invest €100 million in a car battery factory in Slovakia.

Maroš Šefčovič expects that by 2030, 70% of EU electricity will be low carbon. With all of these measures combined, the EU can become a true pioneer and trendsetter for the rest of world. That would create the necessary global impetus to slow down global warming.

PANEL I: ENERGY DIMENSION OF EUROPEAN SECURITY: THE OSCE'S ROLE

Chair of the panel: Radomír Boháč

Keynote speech: Lukáš Parížek

Speakers: Vuk Žugić, Juraj Siváček, Lubomír Tomík

SUMMARY

The OSCE's role in the energy sector is evolving, and it provides a platform for discussion and sharing best practices. Energy security remains an important part of the OSCE energy agenda. Networks protection is part of the security agenda, as greater interconnectivity introduces vulnerabilities into the system.

PANEL DISCUSSION

Radomír Boháč, Ambassador, Permanent Representative of the Slovak Republic to the OSCE and Chairperson of the OSCE Permanent Council, opened the panel by stressing that energy is part of our daily lives and highlighted three points relating to the energy sector: **the complexity of the international energy market, rising global demand for energy in connection with climate change and the importance of energy security.**

Lukáš Parížek, State Secretary of the Ministry of Foreign and European Affairs of the Slovak Republic and Special Representative of the OSCE Chairperson-in-Office for the Slovak OSCE Chairmanship, said that energy security has been in the focus of Slovakia's OSCE chairmanship. He stressed that the OSCE provides a platform for discussion and sharing best practices and that its role in the energy sector is evolving. Slovakia is calling for the focus to be on **protecting critical energy infrastructure** and one of the achievements of its chairmanship is the creation of an OSCE project on virtual competency and a training centre for protecting critical energy networks.

Energy connectivity means improved trade relations, prosperity and better security, and this is where the OSCE has the potential to play a more important role. **Good governance and a good**



business environment are necessary to create the strong foundations of sustainable economic development and a secure energy future. In future the OSCE should focus more on energy efficiency, clean energy, diversification, protection of energy networks and sustainable energy growth in partnership with the business sector.

Vuk Žugić, Ambassador, Coordinator of OSCE Economic and Environmental Activities, explained the OSCE's role in energy security. He emphasised that different chairmanships bring different priorities and that Slovakia has put energy issues as the top priority of the agenda. Energy security is an important part of the OSCE security agenda. **Security of energy supply and infrastructure is the backbone of a stable economy and society.** High level dependency on oil and natural gas remains a concern among EU states. Threats to energy infrastructure and digitalisation are also prominent on the agenda.

The OSCE tries to deal with energy security challenges by cooperating with and assisting countries. It has developed three areas of expertise: energy dialogue, knowledge sharing and expert networks, and national capacity building and training.

Juraj Siváček, Ambassador-at-Large for Energy Security, Ministry of Foreign and European Affairs of the Slovak Republic, agreed that energy security is a precondition for economic growth and stability. Energy security forms an important part of the OSCE's overall concept of security. Slovakia sees three key issues in energy: development of multilateral cooperation, energy efficiency and use of renewables, and the need to protect energy networks. **Greater interconnectivity introduces vulnerabilities** and it is crucial to promote knowledge-sharing so crises can be dealt with.

Lubomír Tomík, Director, CESys, s.r.o., Slovak Republic, described the situation on the energy market. The stability of the energy network is vital, as the recent black-out and fires in California showed. There is a need for an international platform,



and the OSCE can play an important role. It is important to learn from one another and to provide training for stakeholders dealing with security of supply. Security of supply and safety of operations are crucial, so **protecting the energy network is a vital issue.**

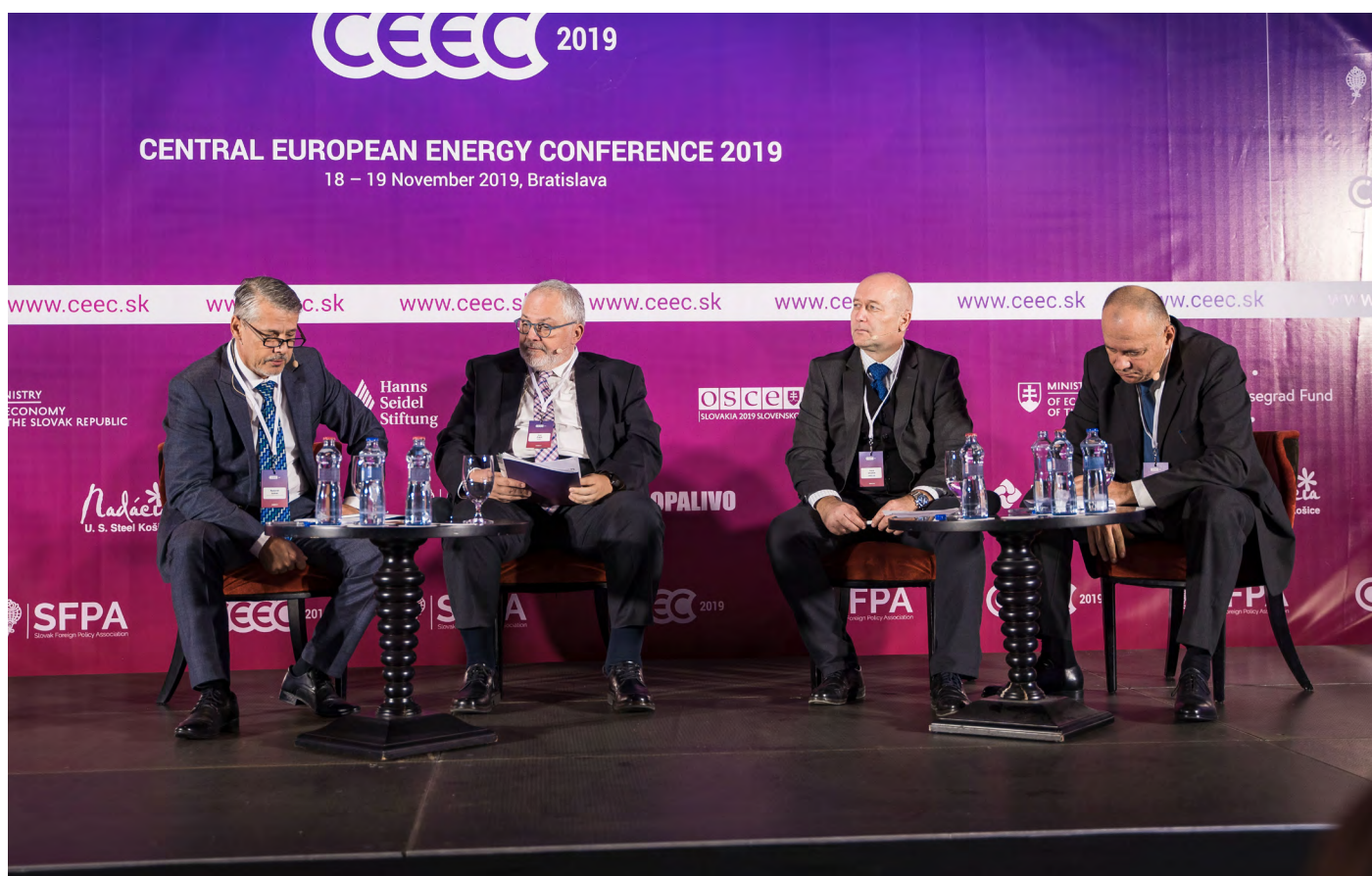
Radomír Boháč asked if the OSCE can increase its role. **Vuk Žugić** said that the OSCE's activities are linked to political leadership, and work is based on consensus. Among its activities are a project on protecting critical energy networks and use of new digital tools in protecting energy networks including **virtual reality to train energy decision makers so they are better prepared for emerging threats.** Another project promotes the development of green ports and connectivity in the Caspian Sea Region. Improvements to security are accompanied by improvements to peace, prosperity and growth. **Juraj Siváček** added that the OSCE is the biggest regional security organisation and that it has become a more relevant actor in energy. Yet, some issues are rather divisive. Convergence to renewables, digitalisation and the increasing role of electricity could be at the heart of the OSCE's future energy vision.

Lubomír Tomík answered a question on ensuring access to affordable, reliable, sustainable and cheap energy by saying that providing energy to everybody is a long term vision and in some cases even utopic. He added that the OSCE is the right platform for protecting energy networks and that it should respond to new

situations. There are already two sets of guidelines: one for natural hazards and the other for cyberterrorism. He identified several future risks: the growing energy demand, a higher penetration of renewables increasing grid vulnerability and the growth of smart grids, which are vulnerable to cyberattack. **Vuk Žugić** added that taking the decision on connectivity had been one of the most important in the OSCE and that it is continuing with its energy activities. For example, there is a **set of recommendations on cyberattacks.** The OSCE is a consensus based organisation, but that is an advantage, as it is a potential regional platform for dialogue.

Lubomír Tomík talked about virtual reality and digital technology, saying that these could play a big role in the future, as all systems could be connected to the internet. A platform for discussion dedicated to these issues thus plays a crucial role, and the OSCE could be more of a global actor than the EU. **Juraj Siváček** answered a question on **international organizations** working in the energy sector. He said that these are **good platforms for consensus building,** as some issues are divisive, but it is important to discuss them and find solutions.

Vuk Žugić concluded that the OSCE believes there is continuity in their mid-term strategies including on the energy sector. **Lubomír Tomík** believed that it is crucial to spend more money on people, research, new applications and launching the training centre.



PANEL II: THE ENERGY UNION: FIVE YEARS ON



Chair of the panel: Maciej Jakubik
Keynote speech: Paula Pinho
Speakers: Gabriela Fischerová, Michal Pinter, Thomas Jan Hejcman, Matúš Mišík

SUMMARY

The Energy Union has become a symbol of a new, complex and ambitious European effort to confront the growth in energy consumption and push for energy efficiency in relation to climate change. We have a sufficient amount of energy but we still lack the necessary interconnectivity infrastructure. Despite the European Commission's optimism that a broad energy transition is feasible, industry questions the extent and cost of the transformation. The steel industry in particular, but also other big energy consumers, are afraid that overly ambitious emission reduction plans may endanger the whole sector.

PANEL DISCUSSION

Paula Pinho, Head of Unit, Energy Policy Coordination, DG ENER, European Commission, reminded us that the project of the **Energy Union was developed in the aftermath of the gas crisis** resulting from the dispute between Russia and Ukraine. We no longer talk about one simple solution but about a set of tools and approaches that are brought together in one project.

Hence, the **five dimensions of the Energy Union** were created. Energy security, energy efficiency, decarbonisation, diversification of energy sources together with innovation and competitiveness, and last but not least good infrastructure. This has proven to be critical as even during the crisis, there were sufficient supplies of electricity and gas. The problem was the lack of interconnectivity among European states.

Nowadays, our **climate commitments lie at the centre of the energy transition debate**. According to Pinho, implementing these commitments and the national climate plans are the first step. However, when we talk about decarbonisation and renewable energy sources, we have to think about how they should be connected in the grid and how we should compensate the sectors that will be challenged by the clean energy transition.

Gabriela Fischerová, Director General, Climate Change and Air Protection, from the Slovak Ministry of Environment stated that **slashing CO₂ emissions is the priority in the Slovak climate change plan**. Slovakia needs money to close down its coal mines and improve energy efficiency. This requires long-term planning that has not been possible before.

The last four years have been the hottest ever recorded, Fischerová reminded CEEEC2019 participants. According to the UN's Intergovernmental Panel on Climate Change, it is possible to limit the heating of Earth. Gabriela Fischerová underlined that only immediate action will help us to achieve this goal, so we can avoid catastrophic global warming in the next ten years.

She considers the Energy Union to be a great project that has pushed Slovakia into preparing a comprehensive energy plan. She also pointed her finger at the transport sector where emissions are still growing. She expressed the hope that the carbon storage technology will become a game-changer but it requires more investment.

Thomas Jan Hejcman, CEO and Member of the Board of Directors, VSE Holding, considered the Energy Union a fruitful project. Nonetheless, he offered a slightly different view and **questioned how prepared we are to bear the cost of the energy transition**. Hejcman had suggested energy market liberalisation, but that would have led to a short-term price hike. Although prices would gradually have fallen under the regulated value in the face of increased competition, he could not imagine a government willing to take the risk.

Hejcman thought the European Commission was moving in the right direction and being increasingly idealistic. He advocated liberalisation of the energy market and renewables. But, he was against import bans based on ideology and said we will have to be prepared to pay more if we want cleaner energy.

Michal Pinter, Director of Governmental and EU affairs, US Steel Košice, went even further, saying that **steel producers are considered the enemy**. He stated that the sector wants to be part of the solution but lacks effective and affordable solutions,



particularly if we want to be carbon neutral on consumption as well as production. Carbon storage technology still has some way to go.

Furthermore, he agreed with Mr. Hejcman that a true energy transition would involve a societal transformation and that cleaner energy would cost more. In that case, the steel industry must be ready to face cheaper competition and a potential existential crisis. It is already struggling to survive due to the overproduction of steel in China.

Pinter spoke on behalf of a whole range of energy dependent industries. His opinion was that replacing the fossil fuel energy required for furnaces was almost impossible, both technologically and financially. **The steel industry can only deliver if the system of production is changed.** He explained that decarbonising

industry would require 400 terawatt hours. In short, electric furnaces are far more energy consuming than coal ones.

Matúš Mišík, Associate Research Fellow, Slovak Foreign Policy Association, welcomed the fact the EU has **moved from supply security to the other aspects** of energy policy. Since 2009, and following the crisis, greater security of infrastructure has become central. He underlined the leading role of the EU in this area. Mišík also mentioned funding for energy projects such as LNG terminals.

Nonetheless, he expected a stronger common EU voice in terms of energy policy. Unity had clearly been put into question by the Nord Stream 2 pipeline that connects Russia with Germany, since the project bypasses not only Ukraine but also EU member states including Slovakia.

PANEL III: PRESENTATION OF THE WORLD ENERGY OUTLOOK 2019

Chair of the panel: Ingrid Brocková

Speaker: Tim Gould

SUMMARY

Despite the adjustments to our energy policies in response to security and environmental threats, we have to go further if we are to get on a sustainable course. We are transforming our electricity supply by enlarging the share of solar, wind and other renewable sources. This requires the infrastructure to be updated as well. The oil and gas landscape is being profoundly reshaped by shale mining, which is influencing the sectors' business models. We should pay attention to the rapid urbanisation of Africa as it will without a doubt result in significantly higher energy demand.

PANEL DISCUSSION

Tim Gould, Head of IEA Energy Supply Outlook Division, and Co-Director of World Energy Outlook, noted that the **energy world suffers deep disparities**. Oil markets are well-supplied but there are deep geopolitical tensions and 850 million people worldwide have no access to electricity. We live in an era when emissions have hit historic highs but the push to cut emissions is peaking. Decision-makers have to make hard choices and support suitable technologies to combat global warming.

The ambition to do so effectively is challenged by the growing use of energy. According to Tim Gould, it is **ten times higher than a century ago**. Rising economies, especially China, Southeast Asia and India, and industries require more oil and gas. Instead of pipelines, they tend to opt for their own resources or LNG supplies. The United States has completely changed the oil trade with its shale mining and diminished the predominance of Russia and OPEC countries.

Step by step, Africa is becoming a big emerging actor. With its growing population, its economy requires increasing supplies



of steel, aluminium and other products. But, the **number of gas fields in Africa is increasing**, as are renewable energy sources. According to Energy Outlook, global energy demand will increase by more than 25% by 2040.

The World Energy Outlook notes a big increase in hydro and wind power projects, although the biggest investments are in solar panels. **By 2040, renewables are likely to account for nearly half of total electricity generation.**

We should not forget that coal-fired plants are still a reality. On one hand, they have benefited Europe for decades, on the other, we are closing them for the sake of the environment. Nowadays, two thirds of all coal-fired plants are located in Asia, and China is building some elsewhere, for example in Bosnia. However, the number of coal-fired plants is likely to fall gradually, according to World Energy Outlook.

To sum up, there is no single simple solution that will enable us to achieve our sustainable development goals. Apart from cleaner technologies, Tim Gould believes behavioural change is necessary. If Europe succeeds, it may become a source of inspiration to others.

PANEL IV: TOWARDS CLEANER MOBILITY

Chair of the panel: Vladimír Šucha

Speakers: Martin Kumpan, Marcin Szczudło, Mário Virčík

SUMMARY

Transport is a challenging sector when it comes to emissions decreases, because road transport has been increasing. Electromobility will help reduce emissions, but the largest potential for cutting emissions lies in the decarbonisation of power generation systems and greater energy efficiency. Demand for batteries will grow and Central Europe has the potential to be a player in the battery market. More policies encouraging cleaner kinds of transport should also be introduced. Natural gas is also part of the solution for cleaner transport, especially public transport in cities. Clean mobility cannot be discussed in isolation of pollution problems.



PANEL DISCUSSION

Vladimír Šucha, Former Director General, Joint Research Centre, European Commission, made some introductory remarks in relation to the clean transport discussion. A technological revolution is clearly going on in transport, and several processes are driving this change: **automatisation, connectivity, decarbonisation and sharing**. Policy making is the most important aspect of transport. People are using public transport less and cars more. Hours spent in congestions in big cities also harms the economy. One of the central questions is **how we can meet emission targets**.

Martin Kumpan, Executive Director, Slovenské elektrárne – energetické služby, described electromobility from an energy company perspective. The **key questions relating to clean transport are the footprint of an electric vehicle and the carbon intensity of electricity generation**.

In Slovakia, most electricity production is nuclear based.

However, the number of vehicles running on fossil fuels has been increasing. Between 2015 and 2019, more than 450 thousand cars powered by fossil fuels were registered in Slovakia. According to the Action Plan, by 2030 there will be 32,500 electric vehicles, which is a small fraction of the total number of vehicles. The switch to electric vehicles helps to reduce emissions, but decarbonising electricity generation is crucial.

Mário Virčík, Strategic Advisor, InoBat and IPM Group, stressed that that EU has extremely ambitious CO₂ emissions targets, but it is estimated to be five years behind in **battery technology development**. The EU will have to rely on foreign producers for the foreseeable future, unless it makes up for the delay in the next two years. Batteries will be in high demand and we will not be able to satisfy that demand.

Central Europe has big potential in the battery market, as the region has a rich regional automotive background. InoBat is a Slovak company aiming to create a research and development cluster and accelerator for the development of battery solutions in the energy and e-mobility sectors. The company focuses on energy storage, batteries and hydrogen.

Marcin Szczudło, Vice President, PGNiG Obrót Detaliczny, discussed the Polish perspective on natural gas for cleaner transport. PGNiG is the biggest energy company in Poland operating in the oil and gas sector. It also focuses on CNG and LNG in transport, especially public transport. **Poland has a problem with air quality, as 36 of the 50 most polluted cities in the EU are in Poland**.

Clean transport is one of the government's priorities, as 40% of buses are more than 10 years old. Natural gas is a green alternative to the fuels currently used. By 2025 natural gas vehicles should account for 30% of vehicles in the public services sector. A special fund will launch incentive programmes related



to vehicles powered by alternative fuels. **CNG buses are becoming a more important part of the fleet.** CNG and LNG fuelling stations are being built around the country.

Martin Kumpan answered the first question from the audience on infrastructure for electric vehicles and opportunities for developments in public transport. He said that they are following the developments in electric vehicles and are aware of changes. The company is not developing vast charging stations, but focusing on small customer-centred strategies.

The second question pointed to the fact that electric vehicle use contributes just a small amount to emissions reduction and **asked if we shouldn't be focusing on other modes of transport, not just individual ones.** **Vladimír Šucha** added that another issue was how to bring about policies that would lead to desirable outcomes in clean mobility. **Martin Kumpan** said that everyone should participate in transforming transport, as we are all transport consumers. **More policies encouraging cleaner kinds of transport should also be introduced.**

Marcin Szczudło explained that high transport emissions are a particular problem in cities, for example Warsaw. Decision makers should support and develop public transport as well as ecological heating to reduce emissions in cities. **Not only should energy sources be ecological, but prices should remain**

competitive as well. **Mário Virčík** answered that every policy has its supporters, and we should focus on each sector. There should be several solutions, such as making public transport faster than travelling by car to motivate people into choosing it.

Vladimír Šucha underlined that we cannot move forwards without sensible policies, but these can be extremely difficult to introduce. He raised the question of Central European attitudes towards more ecological solutions. **Marcin Szczudło** pointed out that ecology is like a diet, you just have to start. There is potential in many areas, and the government has been supporting many different programmes that lead to emissions reductions. However, education and knowledge are also becoming more important.

Martin Kumpan answered a question on new energy sources. The company is evaluating plans for the coal-fired power plants in Nováky and Vojany. He stated that geothermal is not part of the strategy for now. **Mário Virčík** answered a question on hydrogen, saying that it has big potential in the future, but less progress has been made. Electric mobility is the near future. It is important to focus on the public transport sector first for a hydrogen future. **Vladimír Šucha** concluded that clean mobility cannot be discussed in isolation of policy and pollution problems.



PANEL V: NATIONAL ENERGY AND CLIMATE PLANS



Chair of the panel: Paula Pinho

Speakers: Miroslav Jarábek, Waldemar Łagoda, Ottó Toldi, Tomáš Jungwirth

SUMMARY

The five dimensions of the Energy Union are represented in the National Energy and Climate Plans (NECPs). Each member state delivered its draft NECPs by the end of 2018, and the European Commission identified good practices in each and made recommendations. The final versions are to be submitted by the end of 2019. For the V4 countries, the drafting of the NECPs is linked to other strategic documents. The benefits of the NECPs lie in combating climate change, adopting an integrated approach and reducing dependency on fossil fuels.

PANEL DISCUSSION

Paula Pinho, Head of Unit, Energy Policy Coordination, DG ENER, European Commission, briefly summarised the five key areas of the National Energy and Climate Plans: **energy security, decarbonisation, internal energy market, energy efficiency and research**. Each member state delivered a draft plan by the end of 2018. The European Commission identified good practices in each and made recommendations. None of the member states have yet to achieve the EU targets on renewables and energy efficiency. The final versions of the plans are to be delivered by the end of 2019. The National Energy and Climate Plans (NECPs) should also meet the competitiveness target.

Miroslav Jarábek, Director, Energy and Raw Materials Policy Department, Ministry of Economy of the Slovak Republic, underlined that Slovakia's starting point was the high energy intensity of the economy, the relatively limited use of renewables and rising market energy prices. The country is dependent on raw material imports so energy security is crucial. The draft NECP follows on from Slovakia's **Strategy for Energy Security and Energy Policy**.

In Slovakia 78% of electricity production is low-carbon, mainly nuclear. It is better for Slovakia to save energy than to increase the share of renewable sources. In final version of NECP there have been several changes since the initial commitments made in the draft NECP: **a new environmental strategy, an action plan for the transformation of the coal region and a low-carbon strategy**. In the final version of the NECP, Slovakia also took into account the recommendations made by the European Commission.

Waldemar Łagoda, Deputy Director, Electricity and Heat Department, Ministry of State Assets of Poland, admitted the last two years had been challenging, as Poland has been working on two crucial documents: the NECP and Poland's Energy Policy. **The biggest challenge is reducing the share of coal in the energy mix**, which is expected to account for 56–60% of the energy mix by 2030. The ambition is for renewables to account for 21–23% of gross energy consumption, for a 23% increase in energy efficiency and a 7% reduction in emissions in non ETS sectors, which is challenging as the number of new cars will be significantly higher than today. Another issue covered in the NECP is interconnectivity, which will be denser in bidding zones.

Poland's NECP relates to six other strategic documents. However, the NECP is not designed to meet the 2050 target of emission neutrality. **There has to be a big shift in electricity generation and a switch to nuclear energy**. The first nuclear plant should be installed in 2033, but the expected level of investment is very high. Wind farms are also being created and coal plants are being modernised.

Ottó Toldi, Energy & Climate Policy Analyst, Ministry of Innovation and Technology of Hungary, presented Hungary's NECP. The government has addressed the recommendations of the Commission and organised workshops with stakeholders in industry, energy and civic organisations in order to revise the draft. **It has developed a methodology for the calculations and projections**. Improvements could be made in renewables and energy efficiency, and the lignite-fired Mátra power plant should help; it is expected to be operational by 2025.



The benefits of the NECPs lie in combating climate change, reducing fossil fuel dependency and use of an integrated approach. The Commission should accept **nuclear energy as a carbon-free form of electricity generation** and inform member states about the available financial resources before the planning periods for future NECP revisions commence.

The cost of achieving the 2030 climate targets is approximately €100 billion, of which €56 billion is the cost of making the energy sector climate friendly. **It will only be possible to achieve climate neutrality with a significant contribution from the EU.**

Tomáš Jungwirth, Head of Climate Team, AMO Research Centre, Prague, shared his views on drafting the NECP in the Czech Republic. The process has been a gravitation point in climate and energy policy debate in the past year. The Ministry of Industry and Trade and the Ministry of Environment have been finalising and revising the NECP to take account of the consultation. **It is difficult for the ministries to align the processes to achieve coherence.**

Several recommendations were made by the Commission: increasing the share of renewables, being more ambitious about reducing final energy consumption, clarification of research goals, a just transition in the coal regions and publicity and transparency. The revised version does not reflect the recommendations on ambition to reduce final energy consumption or on clarification of research goals. **A just transition in coal regions has been incorporated through Coal Commission and a programme called Restart, aimed at enhancing economic opportunities.**

From the civil society perspective, there is room for improvement in several areas: the low share of renewable sources, conservative PV and wind goals, overuse of biomass in the heating sector and more emphasis on energy communities.

Ottó Toldi answered a question on regional cooperation by saying that several meetings had taken place between the V4, but also with other partners. **Waldemar Łagoda** and **Miroslav Jarábek** agreed that the V4 is a good international platform for discussing NECPs and sharing best practice. Nonetheless, the discussions went beyond the V4 countries.



Ottó Toldi clarified the targets for energy efficiency and interconnectivity. He explained that Hungary has one of the biggest interconnectivity networks in Central Europe and there are plans to expand it by up to 60%.

Tomáš Jungwirth answered a question on further raising ambitions, emphasising that some targets should be revised in the future. **Miroslav Jarábek** added that Slovakia has low-carbon electricity, but there is room for improvement in heating, especially regarding energy saving. Prices should also be taken into consideration. **Waldemar Łagoda** agreed.

PANEL VI: NEW DYNAMICS IN THE NATURAL GAS SECTOR IN EUROPE

Chair of the panel: Ján Klepáč

Speakers: Rastislav Ňukovič, Hans Rasmusson, Sławomir Sieradzki, Michal Kocůrek

SUMMARY

Natural gas will play a major role in achieving the EU's long-term climate objectives. Natural gas, which has low emission coefficients compared to solid fuels, should be included among fuels that can contribute to a significant reduction in greenhouse gas emissions. Different kind of technologies could be employed in the gas sector – renewable gas or partly decarbonised gas or mixing hydrogen into the natural gas system. The largest developments in the gas sector are in the developing LNG market. The potential of LNG is threefold: flexibility and supply security, price and less dependency on Russian imports and coal.

PANEL DISCUSSION

Ján Klepáč, Advisor to the Presidium, Slovak Gas and Oil Association, began the discussion on the natural gas sector by describing the situation in Slovakia. Slovakia's transport network is one of the most efficient in the EU. Eustream, the gas transmission operator, is also the largest transporter of Russian gas into Western Europe. Slovakia also has good storage capacities and the second largest gas infrastructure in Europe.

Rastislav Ňukovič, Director General, eustream, talked about market development, eustream projects and the climate change challenges in the gas sector. The most evident market trend is the growth in LNG demand due to new global liquefaction capacities and price spreads between regions. Underground storages are at their historical maximum and almost at maximum technical

capacity in Europe. Everybody wants to be prepared for the eventual crisis.

There are several ongoing projects: the 164 km Poland–Slovakia interconnector and a new compressor station in Lakšárska Nová Ves in Western Slovakia will bring more flexibility into the network. The BRU(SK)A project has been delayed, and there has not been much progress on the Eastring pipeline connecting Slovakia, Hungary, Romania and Bulgaria.

The increase in emissions and climate change are further challenges for the gas sector. The EU cannot solve the problem alone; it generates around 10% of CO₂ emissions. In order to meet its ambitious targets, the EU has outlined several decarbonisation pathways, utilising a range of technologies not presently in use or if so only on a very small scale. The current ambitions could lead to excessive costs. **The EU will be deploying the existing technology without subsidies, protecting its position as cleantech leader and supporting good research.**

Hans Rasmusson, Secretary General, European Research Institute for Gas and Energy Innovation – ERIG a.i.s.b.l., stressed that final energy consumption can be divided into electrons and molecules, and electrons account for about 20%. Even in high electrification scenarios, molecules account for 40–60%. **The aim in the future is to decarbonise molecules in energy systems.** Electrons and molecules act differently in balancing, storage, renewable energy and transport capacities.

Natural gas is already low in CO₂ and the EU has a robust transmission and distribution network and huge underground storage facilities. Replacing fossil fuels (coal and oil) with natural gas in the power, heat and transport sectors would lead to a reduction in CO₂ emissions. In Germany it accounts for a reduction of 177 million t of CO₂ annually.

Different kinds of technologies could be employed in the gas sector, renewable gas or partly decarbonised gas or mixing hydrogen into natural gas. The key question for the future is the challenge of handling a hydrogen/methane mix.

Sławomir Sieradzki, Director, Gas Market Development Division, GAZ-SYSTEM S.A., framed the discussion by looking at **air quality in the region.** The concentration of air pollutant emissions exceeds EU limits, with negative health and economic impacts.



The challenges are in heat and power generation, while natural gas could be an affordable solution.

For Poland the situation is even more difficult as the country is heavily dependent on coal. However, in recent years gas demand has been growing rapidly. **Poland plans gas-based power and heat generation development that could be one of the driving forces of the Polish energy transformation.** There are several ongoing projects in the gas sector: the Baltic pipeline, capacity upgrade for the LNG terminal and interconnectors with Slovakia and Lithuania. The natural gas infrastructure contributes to the EU's objectives by guaranteeing security of supply, energy efficiency, emissions reduction and clean air to achieve climate targets.

Michal Kocůrek, Analyst, EGÚ Brno, a.s., discussed the role of LNG on the European gas market. The potential of LNG is threefold: flexibility and security of supply, price and less dependency on Russian imports and coal. The expected regasification capacity for LNG terminals in the EU is 250 bcm by 2025. By 2040 key supplies will come from sources with limited transport or limited production capacity, such as Norway, Algeria, Azerbaijan, East Mediterranean, but mainly from Russia or in LNG form. **LNG is the only alternative with the power to reduce the growing import dependency on one dominant supplier.**

On import prices, LNG supplies in the EU are competitive with all external import sources. There has also been synergy between underground storages and LNG supply growth. The LNG story is linked to freedom of choice. The Lithuanian terminal in Klaipeda, called Independence, has helped to decrease dependency on Russian supplies. The issue of Russian gas supplies is also crucial to Poland. LNG will enable Polish gas exports to neighbouring countries. **Sufficient capacities at the borders will improve energy security.**

Hans Rasmusson answered a question, noting that methane is the key issue for the gas industry. **Ján Klepáč** was curious about a contract between Ukraine and Russia, which is due to expire by the end of 2019. **Michal Kocůrek** described the negotiations as difficult, **Sławomir Sieradzki** added that it is important not to be dependent on Russian gas supplies and diversification is crucial. **Rastislav Ňukovič** concluded that Ukrainian transit will be important until Nord Stream 2 is built.

PANEL VII: A CLEAN PLANET: HOW CAN WE ACHIEVE A COMPETITIVE, PROSPEROUS AND CLIMATE NEUTRAL ECONOMY?

Chair of the panel: Pavol Szalai

Keynote speech: Thomas Waitz

Speakers: Norbert Kurilla, Elena Višnar Malinovská,
Richard Kvasňovský



SUMMARY

The ideal scenario is a cleaner planet but the competitiveness of Europe's economy is the subject of much debate. Slovakia has managed to slash its emissions but is behind in increasing the share of renewables in its energy mix. To some extent, natural gas or biogas are a relatively clean energy and heating source and will be in the forthcoming decades. If we want to deliver on ambitious climate plans, a profound societal transformation seems unavoidable. Carbon sequestration and hopefully carbon capture and storage will probably play a critical role in achieving climate neutrality.

PANEL DISCUSSION

Thomas Waitz, Co-Chair of the European Green Party and Member of the Austrian Green Party, reminded us of the past when green politicians 'were considered lunatics'. Today, **everybody can see that climate change is real**. The European Commission has proposed a complex plan to address and has promised to deliver Green Deal 100 days it takes power.

Waitz, a forester and farmer by profession, argued that the only way to combat climate change is to **leave fossil fuels in the soil**. Unlike the other participants, he was opposed to gas despite it being cleaner than other fossil fuels. He also pointed out the dire environmental consequences of the shale gas mining in the United States, the product of which is exported in liquefied state to Europe. He does not consider LNG to be either a clean or a sustainable energy source. Biogas, if used also for heating, could be part of the solution.

Waitz is in favour of renewable sources, especially the hydrogen fuel technology currently being developed. He believes hydrogen could replace the coal and gas used in steel plants. Until the carbon storage system becomes affordable, carbon sequestration of CO₂ emissions is the only available tool.

Norbert Kurilla, State Secretary of the Ministry of Environment of the Slovak Republic, presented **Slovakia's low-carbon development strategy, which contains five decarbonisation scenarios**. He noted that CO₂ emissions have gradually decreased since 1990 with the closure of Slovakia's coal plants and the transformation of the transport and energy sectors. Kurilla sees further room for improvement in cooling and heating.

The State Secretary pointed out that Slovakia is fulfilling its international climate commitments. Current tools may lead to greenhouse emissions being cut by 80–85%, and 100% may be achieved thanks to carbon sequestration using new approaches in forestry and land use. However, the cost of the climate transformation may differ in EU member states. In Slovakia it could cost 2% of GDP according to Kurilla.

Elena Višnar Malinovská, Head of Unit of Adaptation to Climate Change in DG CLIMA, European Commission, argues we have to **halve emissions by constructing new low-energy buildings** and that requires a skilled workforce. She also deemed it necessary to double the share of renewables and combine it with other low carbon fuels such as gas.

She agreed with Norbert Kurilla and Thomas Waitz that improved farming techniques and natural carbon sink enhanced through afforestation and restoration of ecosystems would certainly contribute to achieving the climate goals. Regarding high energy intensive sectors, she believes the future lies in **carbon capture and storage**.

She also sketched out the Commission's Green Deal. It will include climate laws, an industry strategy, the circular economy and energy taxation. The Sustainable Europe Investment Plan will support €1 trillion of investment over the next decade in all corners of the EU and more funds will be available from the European Investment Bank. Innovation and Just Transition Funds will help to compensate for the cost of the green transformation. Finally, people will have to change their lifestyles in order to achieve the desired result.

Richard Kvasňovský, Executive Director of the Slovak Gas and Oil Association (SGOA), supports the European Commission's long-term strategy and the Paris Agreement. Together with Czech Gas and Oil Association, his association **attributes a crucial role to gas in the energy transition process**. Both organisations adopted a statement saying that gas is a low-emission fuel and a 'partner to renewables'.

Moreover, the gas industry offers an affordable energy substitute for other fossil fuels and therefore contributes to the reduction of emissions and better air quality. According to the EEA, **5,000 Slovaks die every year because of air pollution**. That is also why there are government subsidises for replacing solid fuel boilers with gas boilers.

Kvasňovský foresees the gas industry playing an important role in the future, but its share of the energy market will decrease and biomethane and synthetic gases will partially replace natural gas. In terms of transport, he argued that the greenest cars use biomethane or LNG fuel because the overall financial and environmental costs of an electric car is higher.

PANEL VIII: RENEWABLE ENERGY IN THE EU: ARE THE 2020 TARGETS ACHIEVABLE?

Chair of the panel: Ladislav Miko

Speakers: Lívia Vašáková, Martin Hájek, Ján Karaba

SUMMARY

Slovakia and 17 other member states have yet to meet the 2020 targets on share of renewable energy. In both Slovakia and Czechia, wind power is prohibitively costly, both in terms of administration and public opinion. The emergence of prosumers, who consume and produce energy, could change this if the payments for feeding the grid were sufficiently stimulating. However, the growth in energy consumption is hampering attempts to increase the share of renewables.

PANEL DISCUSSION

Ladislav Miko, Head of the Representation of the European Commission in the Slovak Republic, noted that according to Eurostat eleven member states have already met the target for share of renewable sources in the national energy mix. Nonetheless, most EU member states including Slovakia have not. Ladislav Miko wondered what might be the cause and what can be done to ensure the 2020 renewable targets are met.

Lívia Vašáková, Head of Economic Analyses Section of the Representation of the European Commission in the Slovak Republic, reiterated that the National Energy and Climate Plans have to be submitted by the end of 2019 and become operational in 2021. Long-term schedules will have to be published in accordance with the renewable energy directive, which will contribute to the overall stability and predictability.

The new policies contain new terms such as prosumer – someone who both produces and consumes energy. It is expected that the number of prosumers being paid to feed the grid will rise in houses and apartment buildings.

Major challenges lie ahead in cooling and heating. Lívia Vašáková mentioned that the target is to increase the share of renewables by 1.3 percentage points per year, for example via use of biomass. Renewables should also be used in transport, through



the introduction of biofuels. She favours a fundamental change in energy policy, which may well ultimately be cheaper than a gradual approach.

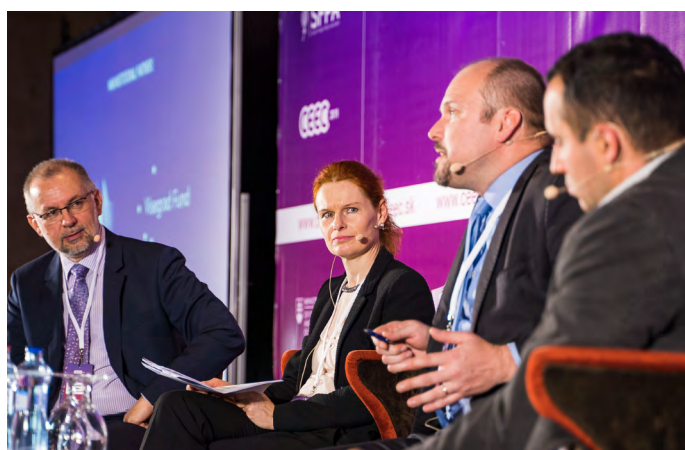
Martin Hájek, Director of the Association for District Heating of the Czech Republic and Member of the Euroheat & Power Board, provided further detail on the Czech experience of renewables. He thinks it is a pity **Czechia provided vast funds for solar energy investment at a time when it had not been sufficiently developed and was quite expensive.** The funds were not contingent on efficiency plans either. That resulted in solar plants being located far from houses and infrastructure and so cannot be used for heating.

Hájek was critical of biomass plants as well. The available subsidies meant they were constructed in old coal plants and achieve only 30% efficiency. Czechia has fulfilled its renewable quota but now lacks the funding to develop new renewable technologies. He concluded on a positive note, welcoming the fact that Czechia had stopped wasting biomass sources. Nowadays, biomass is converted into biomethane and then transported in gas pipelines. Hájek also called for progress in energy accumulation.

Ján Karaba, from the Slovak Climate Initiative/Slovak Association of Photovoltaic Industry and RES, does not believe Slovakia will be able to meet the 2020 targets for renewables since **we cannot keep pace with the growing rate of energy consumption.** Moreover, he thinks the focus should be on renovating public buildings. We should be renovating 3% buildings annually, but in fact only 1% are.

Karaba argued that renewable energy has to become more affordable. It is feasible, he said, pointing to Germany as an example. He also suggested that the green transformation should be combined with the deregulation of the energy sector.

Although Slovakia and Czechia are making progress in renewables, wind power is barely used, especially when compared with Austria. According to Ján Karaba, it is technically possible, but the government does not allow wind energy producers to connect to the grid. Martin Hájek added that 90% of wind power plants are unfinished, either due to public protests or because the approvals process can take more than a decade.



PANEL IX: SMART ENERGY AND EFFICIENCY

Chair of the panel: Artur Bobovnický

Speakers: Elena Višnar Malinovská, Kristina Dely, Jaroslav Klusák, Katarína Korytárová

SUMMARY

Local governments can act on climate mitigation and adaptation, and many climate related issues can be tackled by smart governance and smart solutions. Smart solutions must be self-sustaining and driven by technology. Municipalities have a significant role to play in energy consumption and energy savings. The key issue is to have a smart strategy for savings and an investment plan.

PANEL DISCUSSION

Artur Bobovnický, Director, Analyses, Programmes and International Cooperation, Slovak Innovation and Energy Agency, framed discussion within a changing world in which **digitalisation, datafication and climate change mitigation** will be especially challenging for the energy sector. Despite the promises in the Paris agreement, global emissions have been growing, and we need multiple measures and an all-encompassing approach to change this trend.

Many renewable technologies have become competitive mainstream energy technologies, for example, the cost of photovoltaics has fallen by 85% over the last eight years. Smart energy is the key enabler to reducing emissions, but technology

alone cannot solve the problems. **A climate neutral society is not possible without social and lifestyle innovations in key areas** like cities, buildings and mobility. Governments have a historical responsibility in redirecting funding. The European Commission has already planned a budget of €100 billion for R&I and at least 35% will be allocated to climate change mitigation measures. A climate neutral society is not possible without a change in lifestyle.

According to **Elena Višnar Malinovská**, Head of Unit, Adaptation to Climate Change, DG CLIMA, European Commission, **every country will be impacted by climate change**. Mitigation and adaptation strategies are complementary and can be mutually reinforcing.

Smart buildings are an essential element in a decarbonised, renewable-intensive and more dynamic energy system. The revised building directive supports building renovations and incorporates smart solutions. It is important to work on adaptation measures and synergetic measures for buildings as well, which can be achieved by for example **green roofs with solar panels**.

Transport is the only sector where emissions have not been decreasing, **road transport is responsible for 21% of all EU emissions**. Cities have started dealing with air pollution, but they are doing so in a very fragmented manner by introducing low-emission zones, urban road tolls and other entry restrictions. The 2030 policy framework has several integrated policy proposals: new CO₂ standards for vans and cars, a batteries initiative, the



clean vehicles directive and the eurovignette directive. The objective of the Action Plan on batteries is to develop competitive and sustainable batteries and a value chain in Europe.

Kristina Dely, Energy Cities, explained smart energy and smart governance. She stressed the need to act urgently to fight climate change, and that local governments have an important role in this. **The Covenant of Mayors' Signatories reported over 230 thousand actions taken in climate and energy policies.** Digitalisation can enable smarter governance by providing community feedback and solutions, and operational efficiency.



Community feedback can empower citizens, improve public services and increase ownership and a sense of community. Alba Iulia in Romania created an app for reporting potholes and other road issues. Community solutions empower citizens through efficient use to reduce CO₂, such as bike or car sharing platforms, use of public transport apps and smart cards or streetlight control.

There are also several challenges facing smart solutions in governance, such as populist narratives. **Smart apps require careful planning and relevant local policies.**

Jaroslav Klusák, Energy Manager, Litoměřice, Czechia, talked about his experience of smart solutions in the municipal sector. He emphasised that **it is important to have energy data, such as on energy consumption or number of properties, which is the starting point for energy evaluations.** Second, it is crucial to have policy support and assistance, not just the technology, if new solutions are to be successfully implemented. Municipalities should have support when creating energy plans.

Thirdly, **it is important to motivate citizens to act, for example to save energy.** The fourth point is that it is important to go further and create energy active building. Energy efficiency measures can also have social aspects, as they help reduce energy costs.

Katarína Korytárová, Research Fellow, Slovak Academy of Sciences, discussed energy efficiency and energy savings. She focused on Slovakia and Hungary, which are among the most energy intensive countries in the EU. Municipalities have significant roles regarding households, services and transport, which are responsible for a large part of final energy consumption (around 60% in Slovakia and 75% in Hungary). Slovakia has

seen a decline in household energy consumption thanks to renovations.

Being smart means smart investments. EU funds do not always end up achieving the intended results, so we need smart planning and investments. The planning strategy should be: inventory of energy uses, followed by a list of priorities in investments, financial analysis, a long-term investment strategy and the approval needed to ensure continuity and commitments.

Hungary has the potential to make energy savings in public buildings, but it is important to choose the right, and ideally an ambitious, retrofitting strategy. In Slovakia the 2050 scenario showed that it is crucial to look at retrofit rates that are less costly, but that allow retrofitting for high energy performance. There is still large potential for energy savings to be made, and municipalities can play an important role. The key issue is to **have a smart strategy for savings and an investment plan.**

Artur Bobovnický underlined that municipalities must have enthusiastic people and that energy strategies should go beyond a single electoral term. **Jaroslav Klusák** responded by saying that Litoměřice approved a long-term municipal energy and sustainable strategies. Every year it produces an energy savings report.



Elena Višnar Malinovská answered a question relating to an analysis of a climate disruptive scenario that would fundamentally shake society and what the smart policy would be for such a scenario. She repeated that **mitigation and adaptation processes should go hand in hand.** Adaptation models look at physical constraints, impact and future climate costs, but tipping points cannot be modelled. However, part of the risk prepares plans for companies is also scenario for natural hazards.

Kristina Dely answered the last question by emphasising that cities should have mayors sensitive to climate issues. Cities or micro-regions should have an energy manager who would push certain policies. This requires a different type of thinking, which goes beyond the election cycle. **Artur Bobovnický** added that it is crucial to change consumer behaviour. **Elena Višnar Malinovská** added that leaders should not talk about constraints and changes in consumer behaviour can be achieved. **Katarína Korytárová** drew attention to the use of EU funds and difficulties with public procurement.

ES I: RENEWABLE ENERGY DEVELOPMENTS IN THE CEE REGION: THE KEY TO SUCCESSFUL RENEWABLE ELECTRICITY AUCTIONS BASED ON RECENT EUROPEAN AUCTIONS

Chair of the panel: Ágnes Törőcsik

Speakers: Adéla Denková, Alfa Diallo, Juraj Novák

SUMMARY

Hungary was the first V4 country to introduce a feed-in tariff scheme. The V4 countries are creating a renewable auctions mechanism – a competitive bidding process will replace existing schemes. Poland is the only V4 country to have already had several rounds of auctions. The countries identified several challenges relating to auctions, such as contradictory goals and an unpredictable investment environment due to the changing legislation in Poland, potential high prices for smaller projects and regulatory problems in Hungary, problems with network connection and intensity of competition, and higher prices in Slovakia.

PANEL DISCUSSION

Ágnes Törőcsik, Research Associate, Regional Centre for Energy Policy Research (REKK), opened the session held under the auspices of the Visegrad Energy Think Tanks Platform led by REKK on renewable energy developments.

Adéla Denková, Research Fellow, Association for International Affairs (AMO), presented an **overview of renewable energy sources in the V4 countries, focusing on support schemes**. Hungary was the first V4 country to introduce a feed-in tariff scheme, KÁT, in 2003. It was replaced in 2017 by a new feed-in premium system, METÁR, a competitive process for projects for over 1 MW capacity. Poland introduced green certificates in 2005 and replaced these with an auction mechanism in 2016.

Czechia introduced a feed-in tariff and feed-in premium system in 2006, Slovakia introduced a feed-in tariff system in 2009. **Both countries experienced a solar boom in 2009–2011, which resulted in cautious support.**

In Poland there was progress in relatively low-cost wind power plants, but this stagnated after 2016. However, wind energy remains the main renewable source in the country and off-shore developments can be foreseen. Hungary provides a relatively stable investor environment for investors, but the level of investment remains low.

RES electricity support expenditures were highest in Czechia in 2016 and accounted for €1.5 million. This was the highest in absolute numbers and as a percentage of GDP. The share of RES in electricity is highest in Slovakia and in heating and cooling in Hungary.

Ágnes Törőcsik described the renewable auctions mechanism as a **competitive bidding process that replaces existing schemes**. The main elements were designed by the regulator: what is auctioned, how much is auctioned, how the winners are selected, how the price is determined, and whether there are any special bidding rules or safeguards.



Alfa Diallo, Senior Analyst, Regional Centre for Energy Policy Research (REKK), followed up by explaining the **design of Polish and Hungarian renewable auctions**. Poland is the only V4 country to have already had several rounds of auctions. The 2020 energy renewable target is 15% in final energy consumption. In the electricity sector, the dominant renewable energy technology is onshore wind, followed by biomass, hydro and solar energy. Before 2016 the country operated a green certificate system, which was replaced by an auction based feed-in premium system to reduce the cost of support.

Poland's auctions are static, pay as bid and feed-in premium auctions with coexisting budget and volume limits. **Auction baskets are separated according to three main categories: technology, size and type**. Realisation times are differentiated by technology. The Polish auction design is too complex, has large price differences, contradictory goals and an unpredictable investment environment due to the changing legislation.

Hungary's 2020 renewable energy target is 13% in final energy consumption. The main design elements of the auction are: technology neutral, static, pay as bid, feed-in premium with simultaneous volume and budget constraints and two separate auction baskets, differentiated based on project size. **Only producers in Hungary can participate**. There are also several challenges: potentially high prices for smaller projects, regulatory problems and issues with land rights.

Juraj Novák, Energy and Raw Materials Policy Department, Ministry of Economy of the Slovak Republic, **explained the status of the planned RES-E auctions in Slovakia**. The 2020 energy renewable target is 14% of final energy consumption and 24% in electricity sector. In the electricity sector, the dominant renewable energy technology is hydro energy.

The design elements of the planned auctions are: technology neutral feed-in premium auctions, new investments within Slovakia connected to the Slovak electricity system, pay as bid, and maximum bid price for different technologies. **Price will be the only selection criterion**. There are also several challenges relating to the planned auctions: financial prequalification, problems with network connection, realisation time and intensity of competition and higher prices.

ES II: ENERGY EFFICIENCY IN CENTRAL AND EASTERN EUROPE: NARRATIVES AND FINANCING

Chair of the panel: Kristina Dely

Speakers: Richard Paksi, Roman Chovanec, Zsofia Hamza, Jaroslav Klusák, Matúš Škvarka, Andreas Piontek, Alexander Hadzhiivanov

SUMMARY

A cluster of energy analysts, municipal representatives and investment bankers discussed current trends in energy efficient buildings. Energy audits of older municipal buildings have proven to be very effective. Minor changes such as having the right heating settings may also do the trick. Bankers have shown there are several investment opportunities. The only things they require is the involvement of municipalities with a clear vision.

PANEL DISCUSSION

Richard Paksi, Analyst at Buildings for Future (B4F), presented a list of **ten recommendations for using European Structural and Investment Funds (ESIF)** for energy efficient building renovations. First and foremost, **sufficient investment should be generated so 3% of all buildings can be renovated annually**. Building owners should be motivated to perform the renovations, for example through higher financial support for more ambitious climate-friendly measures.

According to Paksi, maximum support intensity should not exceed 70% of the project cost to encourage a good managerial approach. Nevertheless, it should be possible to combine ESIF, subsidies and other financial instruments to aid planning and maintenance of long-term renovation projects. Last but not least, **simplifying public procurement requirements** is also beneficial.

Roman Chovanec, Head of Energy Office in Bratislava, described Bratislava's energy policy. He named three priorities: a secure reliable supply of all forms of energy of the desired volume and quality, reducing energy intensity and improving efficiency, and covering energy demand on a cost-effective principle.

Bratislava came up with a plan to reduce the energy consumption of municipal buildings using renewable sources so emissions

can be reduced by 20% by 2020. So far, 120 buildings have been identified and undergone energy audits, and one third are awaiting €15 million worth of investment. Bratislava also plans to deploy 60 electric car chargers by 2020 and a new waste incineration heating plant.

Zofia Hamza, Project Manager of Green Office in Budapest's XII. District, described the municipality's attempts to improve energy efficiency via enhanced cooperation with citizens. Even small, cheap steps such as installing smart energy meters in public buildings and data analysis have proven to be very fruitful. She explained how the proper use and setting of heating systems can save a lot of money. She and her team also used a mascot to raise energy saving awareness.

Jaroslav Klusák, Energy Manager in the Czech city of Litoměřice, has monitored and evaluated the energy efficiency of all public buildings since 2012. **His aim is to reduce energy consumption by 30%**. To motivate managers, he created a special energy saving fund that can be used to finance new projects.

His Slovak counterpart, **Matúš Škvarka**, Energy Manager at Trnava's CITENERGO Network, focuses on **reducing transport emissions**. Since Slovakia relies heavily on nuclear power, it makes sense to use this clean energy to charge e-cars instead of using fossil fuel powered cars.

Andreas Piontek, Energy Expert at the Energy Efficiency Division/ELENA, European Investment Bank, strongly supported raising energy efficiency awareness. It may not generate direct benefits but has several indirect ones. Piontek reiterated that there is a lot of investment from ELENA (European Local Energy Assistance) for example that is accessible to private investors.

Alexander Hadzhiivanov, Associate Director at the EBRD's Green Building Investments, described a big green investment plan. According to Hadzhiivanov, the EBRD intends to invest more than €30 billion in green reforms and decarbonisation. Money and technical support will be available for low or zero carbon buildings. However, they must be run properly. Otherwise, the energy saving opportunities are wasted, he concluded.





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