

Report on the Fifth Green Finance Conference of the Magyar Nemzeti Bank*

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On 12 and 13 October 2023, the Magyar Nemzeti Bank (central bank of Hungary, MNB) held its fifth Green Finance Conference at the Buda Centre of MNB. Unlike previous years, this year's conference was a two-day event. The first day was a public event, thematically related to energy efficiency and Hungary's opportunities for action. On the second day, participants were invited to attend the conference on "Sustainability Trends and Dilemmas in Economics". The organisers aimed to reach out to university professors, PhD students and the research network working on sustainable finance and economics in Hungary.

Energy Efficiency Day

The event opened with a welcome speech by *Csaba Kandrács*, Deputy Governor of the Magyar Nemzeti Bank. The first presenter was *Jan Rosenow*, Director of European Programmes of the Regulatory Assistance Project, who as an online speaker presented the global challenges of energy efficiency and highlighted the importance of electrification, which could reduce global final energy consumption by up to 40 per cent.

The second speaker of the conference, *Ksenia Petrichenko*, Energy Efficiency Policy Analyst at the International Energy Agency (IEA), conveyed that global carbon emissions had continued to rise in 2022, while demand for energy sources was expected to reach its peak in this decade. She mentioned the unexpected shocks to the energy sector and the risks and uncertainties associated with the winter of 2023/24. She then turned to the importance of energy efficiency in terms of demand reduction and energy security, which additionally indicated strong demand for labour. She presented the IEA's projections for 2030 and 2050, which suggested a higher penetration of solar energy in the energy mix.

* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

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The third speaker at the event was *Claudia Canevari*, Head of the Energy Efficiency Unit of the European Commission, who spoke about the EU's energy efficiency policy and the "Fit for 55" package. She presented the EU's plans and programmes for energy efficiency and gave an overview of the main challenges of energy efficiency. Among the challenges, she mentioned the financing gap between the need for investment and (public) financing, and the lack of awareness and data.

The fourth speaker, physicist and political scientist *Stefan Thomas*, began his presentation by pointing out that energy efficiency contributes to reducing costs and emissions, and thus to the productivity of companies. Just as the previous speakers, he presented the EU's objectives and the renewal rates in the EU, with a special focus on Hungary. He then presented Germany's targets and energy efficiency efforts.

The last speaker in the morning session was *Vlasios Oikonomou*, economist at the Institute for European Energy and Climate Policy. His presentation focused on energy poverty in Hungary. He stressed that energy poverty in Hungary mainly affected rural areas, where the floor space of real estates is larger. The main sufferers were elderly people living alone, single parents, large families and the unemployed, and he recommended in particular the provision of energy efficiency subsidies. These should, he said, help low-income households most and the EU standards should take better account of the energy behaviour of such households.

The morning programme ended with the presentation of the Green Finance Awards. The winner of the Green Bank Award was UniCredit Bank Hungary Zrt., while the Green Insurance and Pension Fund Award 2023 was presented to Aranykor Országos Nyugdíjpénztár pension fund. The Green Investment Fund Manager Award went to Amundi Befektetési Alapkezelő Zrt.

The afternoon session was in Hungarian and commenced with a discussion between *Csaba Kandrács*, Deputy Governor of the MNB, and *Péter Kaderják*, Head of the Zero Carbon Centre (ZKK) at the Budapest University of Technology and Economics. Projects between the MNB and ZKK, the impact of the energy crisis on MNB mandates and energy vulnerability were the topics discussed.

The discussion was followed by a presentation by *Daniella Deli*, Deputy State Secretary for Climate Policy at the Ministry of Energy. She gave a detailed presentation of the European Union's objectives and the Hungarian strategy, and Hungary's objectives in terms of energy efficiency, also highlighting the role of renewable energies in the sustainability transition.

The last speaker of the day was *Károly Szita*, who as the Mayor of Kaposvár leads the Association of Cities with County Rights. He gave a new perspective, from the standpoint of local governments, on what they think needs to be done in energy

policy. The three main pillars were security of supply, predictable and reliable prices and the protection of the natural environment. He also highlighted the fact that the cities in the association had individually prepared greenhouse gas inventories.

The day concluded with two panel discussions. The first focused on the challenges and opportunities in the field of corporate energy efficiency and was attended by *Csaba Attila Kiss*, CEO of MVM ESCO Zrt., *Tamás Mészáros*, Director of the Corporate Business Unit of CIB Bank, *Zoltán Nagy*, President of the Industrial Energy Consumers Forum, and *Dávid Kiss*, Head of Energy Efficiency at MOL Group. The discussion was moderated by an experienced energy expert, *Csaba Nemes*, formerly Head of the Department of Sustainable Development at the Hungarian Energy and Public Utility Regulatory Authority. The participants first gave an assessment of the energy situation of industry in Hungary and that of Hungarian companies in general. They underlined the negative legacy of socialism and the impact of the Covid outbreak on the energy sector. The problems with the Energy Efficiency Obligation (EEO) scheme were detailed. Mention was also made of the high cost of financing, which hinders energy investment. In addition, due to the unfavourable financing possibilities, many are waiting it out and hoping for potential public subsidies. The role of ESCOs (Energy Services Companies) was also mentioned, where it was stressed that ESCOs are not expensive, as the price includes considerable professional service. The panel members agreed that the most important issues are financing and expanding knowledge and brainpower.

The final panel discussion of the first day concentrated on opportunities for energy efficiency in residential buildings. The panellists were *Áron Horváth*, Executive Director of the Hungarian Energy Efficiency Institute, *Pál Kiss*, President of the Hungarian Heat Pump Association, *Levente Suba*, Head of Sustainability at K&H Bank, and *Tamás Csoknyai*, Head of the Department of Building Services at the Budapest University of Technology and Economics. The discussion was moderated by *Zsombor Barta*, Ambassador and former President of the Hungarian Green Building Council. The participants agreed that the Hungarian housing stock was extremely outdated. Due to the very low renewal rate of the building stock, it was not enough to just build new buildings; it was necessary to improve the energy efficiency of the existing stock, one of the most important elements of which was insulation. In connection with heat pumps, *Pál Kiss* pointed out that the wait for state subsidies was an obstacle to growth in the heat pump market. *Tamás Csoknyai* noted that there was sufficient data available on residential buildings, but poor and insufficient data on non-residential buildings, which would require a more serious survey of their energy features. He also mentioned that Hungary was not only lagging behind Western and Scandinavian countries in terms of the energy efficiency of buildings, but also Slovakia and the Czech Republic, for example, although energy consumption could be halved by thermal insulation. The reason for falling behind

was that the reductions in utility costs had not provided an incentive for energy improvements. *Tamás Csoknyai* also explained that after the reductions in utility costs, the willingness to renovate was highest in the case of detached houses built before 1990, as the heat losses suffered by these houses were so high that it was worth investing in improvements. At the same time, only a limited range of people were able to renovate, and energy poverty was a characteristic of most villages. *Levente Suba* presented the most important details of the EU taxonomy on green loans.

Sustainability trends and dilemmas in economics

The second day of the conference was opened by *Csaba Kandrács*. After welcoming the guests, he noted that, as part of the scientific conference, the MNB wished to provide a bridge between stakeholders, to present the views of experts with different backgrounds and with extensive experience, and to facilitate knowledge sharing, networking and cooperation, which was of key importance in all fields of science, including economics.

The day started with a session named after the eminent scientist Lajos Lóczy, with the first block focusing on the relationship between business models and the circular economy. *Eszter Tóth*, Chief Financial Officer of MOHU MOL Hulladékgazdálkodási Zrt. (MOL Waste Management), gave a presentation on the new waste management model in Hungary. She highlighted the new elements of the 35-year concession system won by MOL Nyrt., including producer responsibility, mandatory return and the new separate household waste stream collection system. She stressed that these would help meet the main expectations of EU waste management: reducing landfilled waste to below 10 per cent and increasing the proportion of recycled waste to over 65 per cent. She also presented the figures for municipal solid waste under concession, which was expected to reach between 4 and 4.5 million tonnes per year. MOHU would be collecting and pre-treat this waste and then transferring it for recovery or disposal. She identified the challenge of accessing waste management data, which required the creation of an IT system capable of ensuring the separation of total costs for different material streams. The new system would provide the basic data for the tariff calculation procedure of the Hungarian Energy Authority, which would be used for establishing the tariffs set in the different subsystems. At the end of her presentation, she explained that MOL intended to invest HUF 185 billion in the next few years to meet EU waste management targets.

The second speaker on the topic of circular economy was *József Benedek* from Babeş-Bolyai University, who gave a presentation on measuring and monitoring sustainability. He started his speech by introducing the topic of sustainable development, highlighting the 17 Sustainable Development Goals (SDGs) adopted

by the United Nations in 2015 as an important milestone in the process. He stressed the multidimensional nature of the topic, as it encompassed several economic, social and environmental aspects. He also underlined the importance of data collection and processing in measuring the goals, especially in respect of environmental dimensions, which were also relevant for risk assessment in the financial and banking sector. His presentation focused on a measurement methodology that he and his co-authors had implemented in Romania. The analysis used a comprehensive set of 90 indicators to measure and localise the 17 SDGs. The data sources included a number of public statistics, information from different ministries, as well as unique and innovative sources such as Earth Observations and Geographical Information Systems. He also pointed out the importance and challenges of applying the methodology in practice. Finally, he presented the results of the measurement process, revealing the spatial distribution of the SDG index in Romania. He stressed that the sustainability index produced generally had low values, especially in the less economically developed regions. One of the reasons for this was that the index included a number of indicators strongly linked to economic development. He concluded his presentation by outlining how this integrated methodology was being tested and applied to promote sustainable development efforts.

The second block of the Lajos Lóczy session was entitled “Energy Efficiency Research: from Data to Policy Measures”. In this session, researchers aimed to answer the question of how raw data could be used to produce results in this topic that could be used by policymakers. The first speaker, *Gyula Gróf* (Centre for Energy Research), professor emeritus, pointed out in his presentation how energy efficiency investments typically fell short of preliminary calculations, known as the energy savings gap. Among other things, the reasons for this included an initial lack of information on the building to be renovated, the lack of comfort (i.e. heating savings from cost reduction), technical challenges in renovation and the changed forms of behaviour after renovation. Failure typically ensued from ignoring adaptation from human behaviour change. Energy efficiency decision makers needed to address these impacts to achieve the expected results. He stressed that if programmes were based on measured data, there was less chance of meeting energy efficiency and climate protection targets.

The next presentation was given by *Judit Gáborné Székely*, Head of the Housing Statistics Department of the Hungarian Central Statistical Office, with the title “The Energetic Condition of the Hungarian Housing Stock”, based on the study “Estimating the Energy Demand of the Residential Real Estate Stock in Hungary Based on Energy Performance Certificate Data”, which was published in the September 2023 issue of the *Financial and Economic Review*, co-authored by Bene et al². The aim of the

² <https://doi.org/10.33893/FER.22.3.123>

research was to estimate the specific primary energy demand of the 2020 housing stock by region and to determine the upper 15-per cent threshold. The method used both linear regression and random forest model estimation, with machine learning achieving better predictions. The research estimated the upper 15 per cent of the domestic housing stock threshold to be 223 KWh/m²/year for single-family homes and 133 KWh/m²/year for condominiums, based on specific primary energy demand. It must be noted that the majority of buildings do not reach energy class FF, i.e. the average energy efficiency level. The calculated values showed significant regional variation, and the energy efficiency of detached houses was found to be significantly worse than that of condominiums.

This was followed by a panel discussion, in which *Gyula Gróf* and *Judit Gáborné Székely* were joined by *Gábor Szarvas*, President of the Hungary Green Building Council (HuGBC) as a panellist, and *Donát Kim*, Head of Division at the Sustainable Finance Department of the MNB, as the moderator. According to the estimate presented in the contribution by *Gáborné Székely*, there were approximately 1.2 million properties in Hungary with poor or sub-standard energy efficiency, worth less than HUF 10 million. As market-based renovation was unlikely for these properties, *Donát Kim* inquired about the possible solutions to this problem to open the topic. *Gábor Szarvas* pointed out that the renewal rate was indeed a fraction of what was necessary, and that consequently, in addition to financial resources, public information and expert and contractor capacities were essential. *Gáborné Székely* complemented the above with the findings of a 2015 housing survey conducted by the Central Statistical Office, which showed that in the case of detached houses, it is common that the funds for renovation were available, but the owners were waiting, for example, because they expected a tender process for funding, and condominiums could not organise the renovation themselves. Citing Western European examples, *Gyula Gróf* noted that when several buildings in close proximity to each other were renovated, this led to the renovation of other buildings in their vicinity.

In response to the moderator's question about the blind spots in Hungarian energy know-how and possible new research directions, *Gyula Gróf* – who cited the cooperation with colleagues from the central bank as a positive example, where economists, sociologists and engineers are able to work together – emphasised that one of the foundations of successful cooperation was finding a common language. It would be important to understand the reasons of energy over- and under-consumption and the incentives that prompt owners to start an energy renovation. *Gáborné Székely* considered it a fascinating research question how family types and family structures affect renovation. She gave the example that before retirement it was common for owners to use their advance savings for energy renovation, and this was more common in families with a direct heir. *Gábor Szarvas* concluded by

highlighting the need for energy efficiency assessments of commercial properties besides residential properties, and the improvement of appraisal models by giving greater weight to the energy efficiency of the building.

In conclusion of the Lajos Lóczy session, MNB Deputy Governor *Csaba Kandrács* presented the Green Financial Science Awards founded by the MNB. The 2023 Green Finance Science Talent Award was awarded to *Emilia Németh-Durkó*, an assistant lecturer at Corvinus University of Budapest, who published several highly cited papers on the topic. The winners of the Green Finance Science Research Initiative competition were *Edit Lippai-Makra* and *Regina Bodó*, members of the research team at the University of Szeged, for their research project “The Impact of the European Union’s Sustainable Finance Action Plan on the Sustainability Disclosures of Hungarian Banks’. The 2nd place went to the University of Pécs and the 3rd place to the research team of the Corvinus University of Budapest.

During the lunch break of the conference, participants had the opportunity to view the selected works from the poster submissions received for the conference. The exhibited posters were related to the broader issue of sustainability, including climate attitudes, sustainable transport and the clothing industry, as well as to issues related to the impact of other green policy measures. The audience also had the opportunity to discuss the research topics and findings with the authors of the papers.

After the lunch break of the conference, *Pál Péter Kolozsi*, Director of the MNB, gave a presentation in connection with the joint research project of the central bank and the MNB-Institute of the John von Neumann University. He started his presentation by saying that there was a basic consensus among central banks on the prudential aspects of climate risks, but that the integration of a green approach into monetary policy was still a matter of divisive debate. Thus, understanding how the greening of monetary policy impacts faith in the central bank was a key issue. This was why they had launched a project, a representative survey on public perception, to assess this faith in line with international research. Their results showed that respondents perceive climate change as a real threat, with a majority fearing its adverse effects, but also that there was a chance of slowing down the process of climate change. The responses also show that there was a need for institutions and political actors to take responsibility. The presentation also highlighted that the majority of people felt that it was important for the central bank to take up a role in the fight against climate change and that targeted and direct measures were more likely to have a positive impact on trust.

The conference then continued with a session entitled “Between Disciplines: the Relationship between Biodiversity and the Economy”, with *Katalin Sipos*, Director of WWF Hungary, as the first speaker. In her presentation, she explained that

the loss of biodiversity also had repercussions for the economy, primarily via the reduction of available natural resources and degradation of ecosystem services – the endowments that nature provided for people. She explained that for many years the Risk Report of the World Economic Forum had identified biodiversity loss as one of the 10 most likely and most serious risks. She noted that by restoring natural habitats, we could reconnect ecosystem services that enhance environmental security and climate resilience and facilitate the regeneration of natural resources. These were so-called nature-based solutions. With regard to the financial and economic sectors, she underlined, among others, the need to improve the understanding and assessment of nature-related economic risks and science-based objectives. Finally, she drew attention to the need for the active contribution of the academic sector.

The second speaker of the block was *György Szabó*, Rector of the University of Nyíregyháza. According to Szabó, in recent decades, the study of the effects of climate change had forced an increasing number of specialist areas to apply their tools and methodologies to the study of risks related to climate change and sustainability. The rapid development of remote sensing and earth observation tools and processing methods had led to the development of widely applicable models and results on global climate change. He stressed the importance of measurability in the context of biodiversity-related financial risks. At the end of his presentation, he outlined the most important bio- and geodiversity data systems and the projects launched in Hungary to develop national-level maps. Among the latter, the Landscape Ecological Vegetation Database & Map of Hungary (MÉTA), the NÖSZTÉP Ecosystem Base Map online map service and the National Geospatial Base Map (NTA) were worth mentioning.

The third and final speaker of the biodiversity block was *Eszter Kelemen*, senior researcher at the Environmental Social Science Research Group (ESSRG). At the beginning of her presentation, she introduced the way economic science thinks about nature. She then presented the report issued by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on the values of and appreciation of nature. According to the report, the value of nature was usually expressed in terms of a single metric, such as how many protected species it was home to. However, these value indicators could only provide a fraction of the information about nature-specific – instrumental, relational and intrinsic – values that were deep-rooted in societal values and worldviews. The analysis also showed that in the vast majority of cases, evaluation results were not directly fed into decision-making.

The conference ended with a panel discussion moderated by MNB director *Péter Kolozsi*, entitled “Challenges and opportunities of new issues from an editorial perspective”. The first topic was the relationship of the scientific community and

journals with new sustainability and green issues. *Péter Halmai*, a full member of the Hungarian Academy of Sciences, highlighted the economic interest in new topics, but noted that neoclassical approaches had difficulties in exploring issues beyond their established methods. He cited Dasgupta's report as a good example, which attempted to integrate environmental considerations into neoclassical growth accounting. He also noted that it was important to analyse social and economic sustainability, as these could have implications for environmental sustainability. *Tamás Halm*, editor-in-chief of *Közgazdasági Szemle* (Economic Review – monthly of the Hungarian Academy of Sciences), identified growth, networks, simulations and machine learning as the most frequently discussed topics, which had recently been expanded to include industry 4.0, pension sustainability and healthcare. Also noteworthy were the papers in the journal on energy sustainability and the impact of battery factories. *Endre Morvay*, editor-in-charge of *Hitelintézeti Szemle/Financial and Economic Review*, spoke about the evolving discourse on the implications of the green transition for monetary policy and supervisory tasks, including the thematic journal issue on sustainable finance.

On the issue of interdisciplinarity and sustainability, *Péter Halmai* said that caution should be exercised in the case of initiatives labelled as exclusively “multidisciplinary”, which did not meet the requirements of the individual disciplines. On the issue of local journals and international rankings, *Endre Morvay* pointed out that universities were under great pressure to publish in internationally ranked journals, which created competition. He explained the challenge of meeting the criteria, e.g. the Web of Science criteria, for inclusion in international rankings. *Tamás Halm* acknowledged that Hungarian-language journals found it difficult to advance in international rankings, while *Péter Halmai* concluded by underlining the importance of preserving the Hungarian language through Hungarian scientific journals. Overall, the debate touched on the complexity of adapting economic thinking to new sustainability challenges and the transformation of scientific publishing at both the national and international levels. In his closing speech, *Norbert Holczinger*, Head of the Sustainable Finance Department of the MNB, drew attention to the importance of cooperation.