

# *Financing a Sustainable Economy in Hungary, Opportunities and Challenges: Decarbonisation, Green Transition, Sustainable Finance, Central Bank*

Csaba Kandrács

*Central Bank of Hungary (Magyar Nemzeti Bank)*

kandracscs@mnb.hu

---

## SUMMARY

Today's prolonged crisis situations, such as the Covid-19 pandemic, the Russian-Ukrainian conflict, and the energy and climate crisis call for climate neutrality in Hungary, although they make transition difficult in the short term. A number of studies suggest that Hungary will be able to reach the target by 2050 at the latest, and that the benefits, on the whole, will outweigh the macroeconomic sacrifices. Nevertheless, green transition, including the Hungarian economy, requires a huge amount of investment and financing, which makes it necessary to involve the private sector, and which central banks can assist effectively. Fortunately, a variety of solutions to finance green and sustainable investments have emerged recently, although we are still at the beginning of the process. The Central Bank of Hungary (Magyar Nemzeti Bank, MNB) has taken a number of measures – and is planning to take further ones – to promote green finance in Hungary, which, in addition to the development of a sustainable financial system will contribute to Hungary's transition to an environmentally sustainable economy.

**KEY WORDS:** Decarbonisation, green transition, sustainable finance, central bank

**JEL CODES:** F62, G28, O16, Q54, Q56

**DOI:** [https://doi.org/10.35551/PFQ\\_2023\\_1\\_2](https://doi.org/10.35551/PFQ_2023_1_2)

*The original manuscript was submitted in Hungarian.*

---

With the Covid-19 crisis barely over, we are already facing another global crisis: the Russian-Ukrainian war that broke out in February 2022, and its diverse but interrelated consequences. The conflict has disrupted the energy and food markets with the result that even basic human needs are becoming increasingly difficult to meet, and the threat of hunger, social tensions, and directly the war itself provide a fresh impetus for migration. The turbulence caused by the war has spread into daily life in sovereign states, with a growing number of countries experiencing macroeconomic imbalances, increasing budget deficits, a renewed rise in public debt, and several countries are faced with negative current account balances. Real economies are also affected by these threats, and the financial system, which well illustrates the state of the economy, is under increasing strain, as inflation rises to levels not seen for decades, putting central banks under pressure, and leading to tighter monetary policy responses.

All of these challenges are emerging in the short term with such magnitude that each and every one of them could demand the attention of decision-makers for years. Unfortunately, however, we must not forget another crisis more profound than the current one, which is capable to shake the very foundations and is almost inevitable, and the addressing of which cannot be postponed, even in the current situation. It is a crisis that may well have played a role both in the emergence of Covid-19 and in the escalation of the geopolitical tensions behind the war. The window of opportunity to resolve this crisis, or at least to mitigate its consequences is critical. Some pessimistic scientists say we have less than 10 years, a more optimistic approach suggests up to 30.

The crisis of environmental sustainability is different in nature from the ones caused

by pandemic-induced lockdown, disrupted gas supplies and international bank transfers suspended as a result of war sanctions. In essence, it penetrates our environmental, social and economic systems, and it multiplies and intensifies the crises in their various forms. Droughts and floods have always posed challenges, and so have epidemics, migratory movements, food shortages and sovereign defaults. But the frequency and intensity of these impacts are increasing at unprecedented rates – unless we change course drastically.

This crisis is essentially rooted in our reliance on fossil fuels. The global economy is predominantly based on coal, oil and natural gas, the burning of which is upsetting the climate balance, making various regions of our planet increasingly uninhabitable. It should be obvious, even to those taking a more sceptical view, that the biomass built up over millions of years in different layers of the Earth as a source of fossil energy cannot be exhausted in a mere century or two without consequences. The speed of the process has unknown consequences. For this reason, with a successful transition from fossil fuels resulting in CO<sub>2</sub> emissions to carbon-free energy sources, we could prevent or slow down the rise in temperature, or even avoid the tipping point that would trigger irreversible climate processes with a threat to the current form of civilisation. There is no longer any scientific doubt about it, even if many people choose to claim the opposite out of ignorance or for other reasons.

At the heart of the process is the strive for climate neutrality. It simply means that the current steadily rising global greenhouse gas (GHG) emissions must rapidly decline and drop to almost zero (a level that can be offset by forests or by technologies developed in the meantime, such as systems that remove CO<sub>2</sub> from the air) in the second half of the century. Opinions on the extent to which this

can be achieved in a few decades without a critical change or the introduction of ‘wartime economy’ differ widely.

At any rate, the consensus is that the shorter and faster the transition, the better the chances of avoiding the worst impacts of the impending environmental and climate crisis. There are encouraging signs that a turnaround has begun. There is everyday evidence, including the broader discussion of green issues, electric cars appearing on the streets, solar panels mounted on more and more rooftops, or fake meat burgers added to restaurant menus. But the rate of progress is so slow that even the world’s greenhouse gas emissions are far from peaking, let alone falling. Moreover, addressing the short-term problems outlined above poses a serious risk that the turnaround set in motion will slow further. Tackling the climate change or more broadly, the sustainability crisis is not something to only deal with when all other crises have been resolved, especially as many of them are caused by climate change itself.

Indeed, the war has highlighted the importance of energy security and availability, but the process should not decelerate, because addressing the current energy and financial turbulences in part requires the same steps as the efforts aimed at climate neutrality: reducing our energy demand and exposure, and especially, the use of fossil fuels. This is particularly relevant to countries heavily reliant on fossil energy imports such as Hungary, where between 1996 and 2021, 50–60% of the energy demand came from abroad, depending on the year (70 percent in 2019, which was outstanding), and almost entirely from Russia (Hungarian Energy and Public Utility Regulatory Authority, Hungarian abbreviation: MEKH, 2022). It is widely known that in terms of Russian gas supplies, Hungary is one of the most vulnerable countries in the EU, as illustrated in *Figure 1* (EIU, 2022).

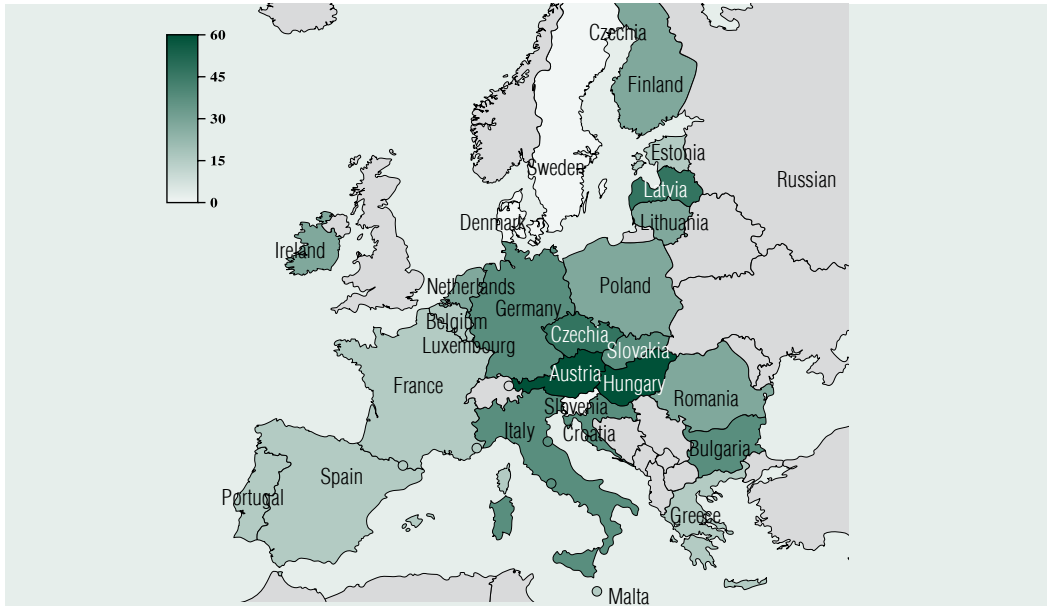
Decarbonisation will improve both the energy security and the macroeconomic structure of Hungary with a favourable impact on the balance of payments by reducing the demand for energy imports, and it will also reduce inflationary pressures related to energy prices. In addition to the economic benefits, the transition to clean energy production will improve air quality and consequently the health of people, among others. It will also make Hungary a more attractive destination for international tourism, and the greater the number of domestic technological solutions applied, the higher the impact on innovation. Therefore, the promotion of energy efficiency and renewable energy is a priority for our energy policy, security policy, economic policy and, not least, financial policy efforts. For this to work smoothly, the domestic financial intermediary system needs to support environmental sustainability even more strongly through its financial products and services, while contributing to the improving competitiveness of Hungary.

## THE INVESTMENT AND FINANCING NEEDS OF A SUSTAINABLE ECONOMY

The success of transition will depend on whether the infrastructures and manufactured assets in the coming decades continue to be implemented in the traditional (brown) carbon-intensive way, or whether a shift to low-carbon and carbon-free (green) technologies is achieved. There are several estimates as to the magnitude of the shift (*Figure 2*). A recent one is a calculation published in time for COP26, the latest UN climate summit held in Glasgow, according to which climate neutrality will require a total investment of USD 125,000 billion in carbon-neutral energy and land-use related assets by 2050 (Vivid Economics, 2021). This is not all ‘new money’, but it

Figure 1

**EUROPE'S EXPOSURE TO RUSSIAN NATURAL GAS CUTOFF IN 2020  
VULNERABILITY INDEX\***



Note: \*Average of gas imports out of total imports, gas supply out of total energy supply and share of gas imports from Russia.

Source: own editing based on MapChart (EIU, 2022)

represents a ‘brown to green’ shift in spending on carbon-intensive infrastructure and assets. This is a huge amount, considering that it is estimated to be more than eight hundred times the GDP of Hungary in 2020. But we could also compare it to global military spending, which in 2021 was USD 2,100 billion, roughly one-sixtieth of the funding requirement presented above (SIPRI, 2022).

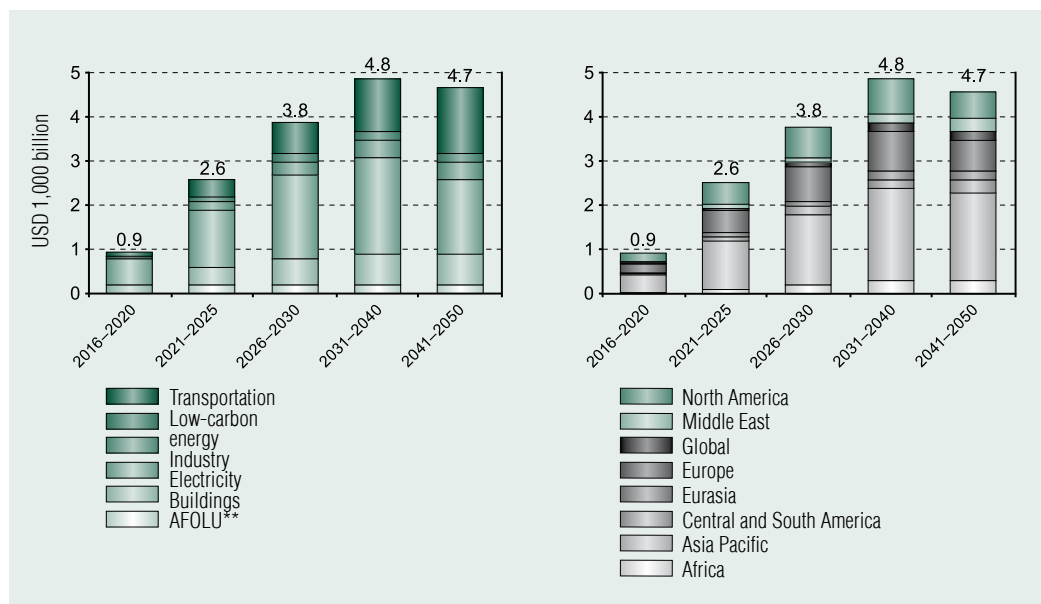
However, considering the estimated costs associated with the consequences of accelerating climate change, on the other hand, the cost of the transition is almost negligible. If we do not change, our current warming path (+3.7 degrees Celsius by 2100) may lead to losses and damages worth USD 551,000 billion by the end of the century (Tyndall Centre, 2018). To put it into perspective, the

global wealth is estimated to be USD 500,000 billion (Nordhaus, 2013).

While on a global scale there is a clear economic rationale to sustainability transition, the heterogeneity and complexity of the world economy complicates the picture. The benefits of transformation vary across the world, as do the harms. Carbon-intensive countries reliant on fossil energy exports without economic reform may end up losers, while the countries with relatively clean energy systems already in place have a good chance to be winners. Also, in terms of harm, the situation varies widely mainly due to geographical features. Unfair as it may seem, the countries that are most vulnerable to climate change and face the greatest physical threats are the ones that are least responsible for the sustainability crisis.

Figure 2

**AVERAGE ANNUAL INVESTMENT NEEDS BY SECTOR (LEFT) AND REGION\* (RIGHT) BETWEEN 2021 AND 2050**



Note: \*Final investments broken down further by specific countries/sub-regions: Brazil, China, EU, USA, India, Japan, Emerging Asia Pacific, SIDS. \*\*AFOLU investment refers to the additional expenditure required to achieve environmental sustainability above the 2020 investment levels.

Source: own editing based on Vivid Economics estimates, 2021

A number of analyses suggest that Hungary has a good chance to be a winner of the sustainability changeover. A recent study by the consulting firm McKinsey looked at the decarbonisation potential and its costs and benefits for the Hungarian economy, while the UK-based Cambridge Econometrics research group analysed the extent to which Hungary would benefit from successfully tackling climate change, i.e. decarbonisation at the global level.

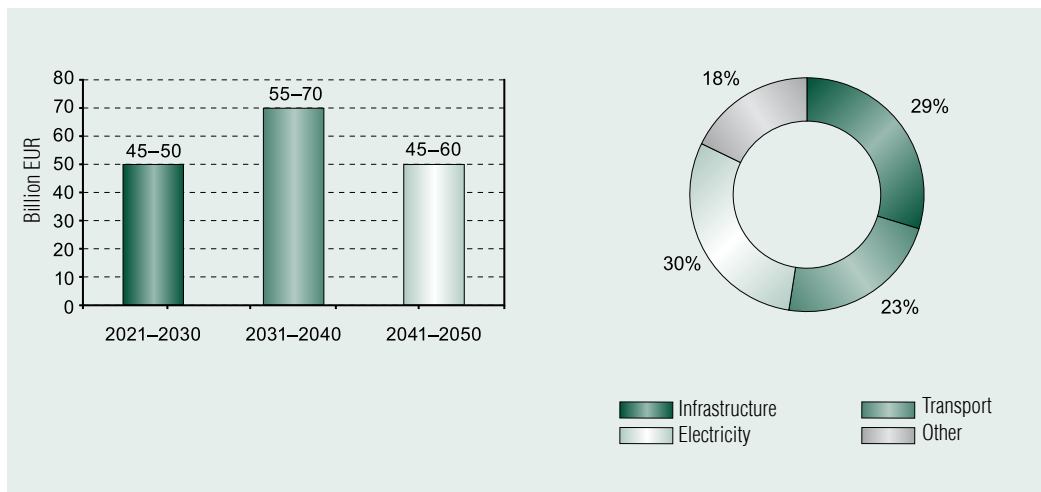
McKinsey published a detailed study in May, just after the outbreak of the Russian-Ukrainian war, arguing that Hungary could achieve climate neutrality by 2050, and that the transition would not lead to a decrease but rather to an increase in GDP (McKinsey, 2022). According to the report, the transition

will require an additional investment of EUR 150–200 billion over the next 28 years compared to business as usual (Figure 3), but it will pay off because the capital expenditure would be partially offset by operational savings through greater energy efficiency, and approximately 80–100,000 new jobs would be created. As a result, McKinsey expects an average annual GDP growth of 2–2.5 percentage points by 2050.

The costs estimated in the McKinsey report are significantly higher than the amount calculated by the Hungarian government in its detailed climate neutrality strategy submitted to the European Commission last September. The National Clean Development Strategy estimates an investment requirement of EUR 48–70 billion compared to business as usual

Figure 3

### CAPITAL INVESTMENT REQUIRED TO ACHIEVE NET ZERO EMISSIONS IN HUNGARY



Note: Left side: total capital investment required per sector (2021-2050), 100% = EUR 145-196 billion. Right side: other category includes buildings, industry and agriculture

Source: McKinsey, 2022

(Ministry for Technology and Industry/ITM, 2021) The most remarkable difference between the two analyses is that the McKinsey report does not anticipate the use of nuclear power, while the government strategy assumes that the Paks 2 development will be implemented before 2030.

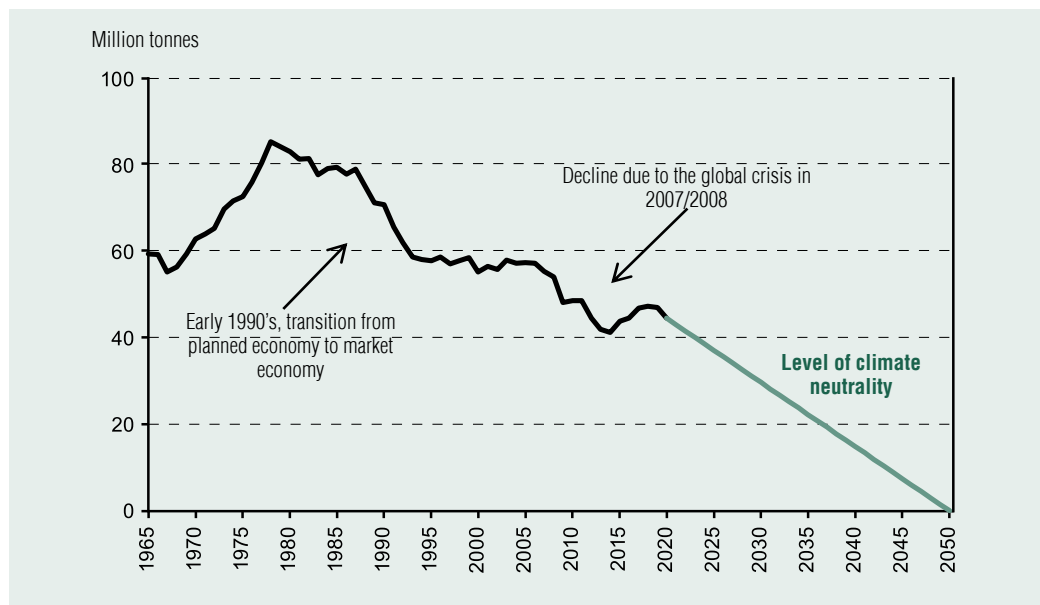
Both analyses, in essence, propose similar paths for the reduction of greenhouse gas (GHG) emissions. Hungary’s net GHG emissions in 2021 were 57.4 million tonnes of CO2 equivalent (Figure 4) (considering the impact of forests), 37.4% less compared to the base year 1990 (Hungarian Meteorological Service/OMSZ, 2022). McKinsey’s ‘cost-optimised’ emissions trajectory anticipates emissions to fall to 43 million tonnes in 2030, 53% below 1990 levels. The remaining portion of GHG emissions will fall to net zero in the period 2031–2050. According to McKinsey, net zero will mean that in 2050, 8 million tonnes of residual GHG emissions will come from

the transport, industry and agriculture sectors, compared to 8 million tonnes of negative emissions from the absorption capacity of forests, and the various technologies that will have matured by then – direct air capture (direct capture of CO2 from the air). In the government strategy, net zero represents a balance between 4.5 million tonnes of emissions and 4.5 million tonnes of absorption.

A third analysis looked at the positive effects of successful international climate protection efforts to prevent runaway climate change with respect to Hungary and the Visegrád region in general (Cambridge Econometrics, 2021). The think tank points out two reasons why Hungary has an interest in keeping global warming below +2 degrees Celsius compared to pre-industrial levels. One is to keep physical damage under control: while global warming at +4 degrees Celsius could cause damage equivalent to approximately 3.3% of annual GDP, at +2 degrees Celsius it would be only

Figure 4

### HUNGARY'S LEVEL OF CO<sub>2</sub> EMISSIONS FROM ENERGY USE AND EMISSION TARGET



Note: Due to limited availability of data only CO<sub>2</sub> emission figures related to energy consumption are presented, which accounts for almost two-thirds of Hungary's total GHG emissions.

Source: own editing based on BP data, 2022

1.7%. The other is to eliminate Hungary's reliance on fossil energy imports. With a +2 degrees Celsius pathway, it is anticipated that fossil energy sources will be fully replaced by carbon-free sources, resulting in the elimination of fossil energy imports and an improving foreign trade balance. With this, the amount of Hungary's spending on oil and natural gas imports – as indicated in *Table 1* – would remain in the national economy to be used for other purposes.

### WHAT IS CONSIDERED SUSTAINABLE ECONOMIC ACTIVITY? WHAT SHOULD WE FINANCE?

Looking at the figures, it is clear that the public sector alone is unable to provide the amounts

of money envisaged by McKinsey or the government. Consequently, the private sector will have to provide the majority of the funds, which, according to *Vivid Economics*, would be around 70% of the estimated investment value globally. This means that all companies, regardless of size, will eventually have to change their business models and contribute to sustainability.

There are several prerequisites for accelerating this transformation, and probably the most important one is the 'power of money'. Financial interest is also a key driver of the positive trends already underway in the field of power generation (e.g. wind farms, solar panels) or transport (electric cars). The cost reductions achieved by these technologies already demonstrate a financial rationale compared to conventional technologies.

Table 1

**HUNGARY'S FOSSIL FUEL EXPORT-IMPORT RATIO  
BETWEEN 2008 AND 2021**

	ENERGY SOURCES (GDP %)		
	Export	Import	Net
2008	2.6	8.7	-6.2
2009	1.7	6.5	-4.8
2010	2.1	7.4	-5.2
2011	2.9	8.8	-5.9
2012	3.2	9.3	-6.2
2013	2.9	9.1	-6.3
2014	2.7	8.8	-6.1
2015	1.8	5.9	-4.1
2016	1.5	4.6	-3.1
2017	2.0	5.7	-3.7
2018	2.2	6.0	-3.8
2019	2.0	5.8	-3.8
2020	1.7	4.0	-2.3
2021	2.5	6.9	-4.4

Source: own editing based on MNB data

In order to make appropriate business decisions and manage risks, it is essential for all parties to have a common understanding, and to ensure that businesses and governments alike are clear about what contributes to the turnaround, and what does not. Following the adoption of the Sustainable Development Goals (UN Agenda 2030) and the climate targets (Paris Agreement) in 2015, work began around the world to develop guidelines to help bring clarity. South Africa, China, Mexico, the United Kingdom, Canada and Russia have all started to develop sustainable finance taxonomies, but the most refined and detailed regulation of the kind has so far been produced by the European Union.

The EU's Green Taxonomy that entered into force in July 2020 and has been continuously updated is a 550-page classification document that lists economic activities with the related technology assessment criteria, allowing to quantify their impact in terms of environmental sustainability. The basic logic of the taxonomy is that for an economic activity to be acceptable in terms of environmental sustainability, it must make a material contribution to one of the following environmental objectives: reducing GHG emissions, adapting to the inevitable impacts of climate change, protecting water resources, promoting circular economy, preventing environmental pollution, preserving biodiversity. Each of these objectives should be promoted without



compromising the others. For example, a wind turbine erected on a nature reserve cannot be considered environmentally sustainable.

The scope of the EU taxonomy is expanding. It is there for businesses to consult when they need credit for green investments. It can also be used as a reference for companies to demonstrate environmental performance in their reports. The taxonomy will also be a benchmark for the new European Green Bond Standard, and the disbursement of funds from the Recovery and Resilience Facility (RRF) set up to mitigate the effects of the Covid-19 pandemic is also partly linked to it. In addition to promoting sustainable investments, the taxonomy specifically aims to discourage greenwashing, the increasingly common practice where companies exaggerate their green performance or present a false self-image.

The EU taxonomy is hoped to become a global benchmark extending beyond the borders of the Member States. As a ‘gold standard’, it is in line with the progressive vision of the EU Green Deal aiming for climate neutrality by 2050 and the European environment and climate strategy in general. The EU wishes to be at the forefront both in terms of the set targets and in the way they are achieved. As for the former, a good example is the EU 2030 climate target, which is the most ambitious commitment at the international level. And for the latter, the flagship instrument for achieving the European climate targets, the EU Emissions Trading System (EU ETS), which was first introduced as an experiment in 2005, is another good example. This ‘green learning’ role is based on the EU’s willingness to take responsibility for the accelerated climate change, as well as the political conviction that its progressive approach can be converted into industrial policy and ultimately, a competitive advantage. Meanwhile, the Russian-Ukrainian conflict and the resulting reciprocal sanctions have painted a whole new picture. Rather than

weakening the green ambition, the energy dependence and energy security dimension of the conflict reinforces the importance for Europe to become self-sufficient and sustainable as soon as possible. Therefore, the current geopolitical tensions are likely to not undermine, but strengthen the EU taxonomy.

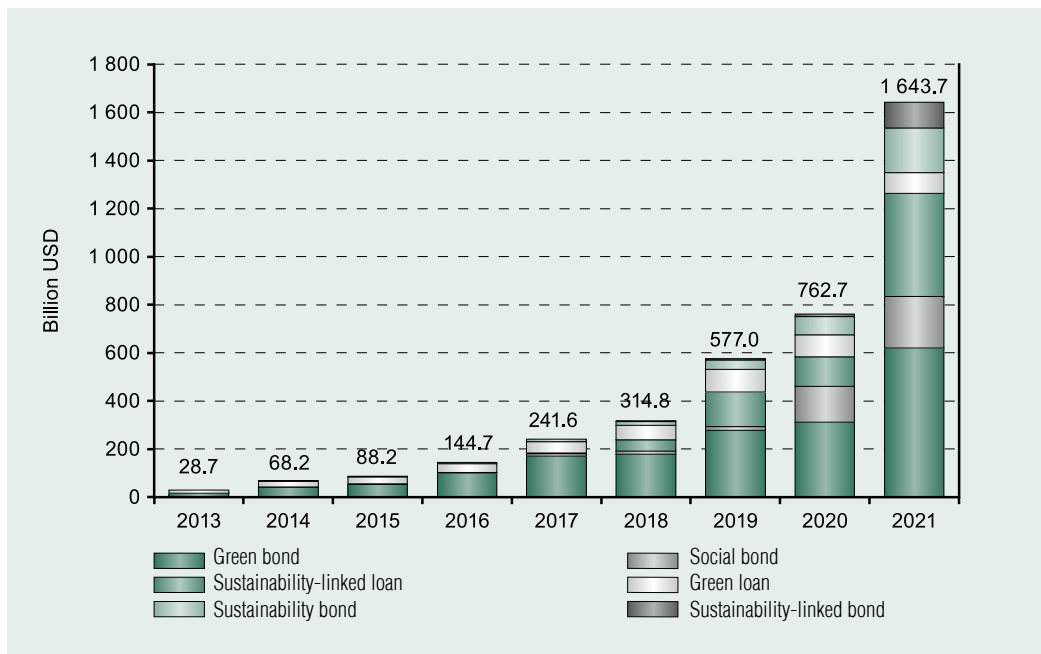
## EMERGENCE OF SUSTAINABLE FINANCIAL INSTRUMENTS

In international practice, financial instruments that contribute to sustainability objectives and support decarbonisation have long been seen in financial markets. In 2022, *BloombergNEF* published its Sustainable Finance Market Outlook, which examined the sustainable debt portfolio for the period 2013–2021, broken down to reflect innovative financial products. *Figure 5* shows that in 2013 the global share of these financial instruments was very low, that is to say, sustainable finance was still in its infancy. At that time, green bonds and green loans were the most prominent products emerging in the international developed markets. This was followed by a steady growth until 2020, while the range of financial products expanded continuously. For example, social bonds and sustainability-linked bonds and loans gradually emerged. Then, despite the outbreak of the coronavirus pandemic in 2020, the volume of sustainable financial instruments increased sharply in 2021, with the sustainability-linked debt stock essentially doubling year-on-year. It also appears that green bonds accounted for the vast majority of the almost USD 1,644 billion worth issuance, similar to recent years (*BloombergNEF*, 2022).

The instruments of sustainable finance are continuously evolving in shape and level of sophistication and refinement: the focus is no longer on environmental and climate goals only, but, for example, social considerations

Figure 5

**SUSTAINABLE DEBT BETWEEN 2013 AND 2021**



Source: own editing based on BloombergNEF data

are becoming increasingly important, too. Based on the figure, it is perhaps no exaggeration to say that we are now entering a mature phase of sustainable finance on a global scale. One of the reasons for this is the huge demand for financing investments aimed at sustainability transition, because, as discussed in previous chapters, public funds alone will be insufficient to cover the resource needs of climate and other sustainability investments. Involving the market and private capital is key to the transition to a low-carbon economy.

In domestic terms, green and sustainable finance has not yet reached the level of development seen, for example, in Western European markets due to its novelty, although the signs of progress are clearly visible. Its role in financing Hungary’s green economic transition is extremely important.

In terms of green debt securities, in Hungary the first green government bond was issued in 2020, followed shortly by the first green corporate bond issuance, all of which represent a major milestone in the development of green finance domestically. After that, additional four green government bonds were introduced to the Hungarian market in 2021, with a combined value of HUF 719 billion at the end of the year. The initial momentum persisted in the green corporate bond segment as well, with a further 13 green bond issues by the end of 2021, and the total portfolio reaching HUF 328 billion (MNB, 2022).

Investment funds, as another important segment of the capital market, has also seen a shift towards sustainability. While in 2020 the assets of ESG-focused investment funds amounted to approximately HUF 27 billion,

by the end of 2021, the net asset value rose to HUF 158 billion. Naturally, we are still below the EU average (in 2021 ESG funds as a share of total investment funds represented 38% in the EU, and only 1.8% in Hungary), but the progress is clearly visible (MNB, 2022).

Due to inadequate availability of data, it is difficult to estimate the share of green lending in the domestic corporate loan portfolio. An accurate picture is available for green loans covered by the infrastructure support factor introduced at the end of 2020, which, at the end of 2021, exceeded HUF 461 billion. In addition, the Green Preferential Capital Requirement Programme aimed at businesses and municipalities, introduced by the MNB at the end of 2020, can provide further information on green lending by banks participating in the initiative. There has been a steady increase in the number of credit institutions utilising the programme with an additional HUF 218.19 billion of green loans disbursed between 1 January 2020 and 31 December 2021, representing 2% of total corporate lending (MNB, 2022).

Overall, Hungary is still behind the global financial markets, but the last two years have seen significant progress in green finance. The MNB's policy on environmental sustainability, explained in detail in the following chapters, has played an important role in this process.

## CENTRAL BANKS AND FINANCING SUSTAINABLE ECONOMIES

As discussed before, the public sector alone is unable to satisfy the huge funding needs of the green transition, which makes it necessary to involve the private sector. For private investors to play a meaningful role in the process, they must be made interested in participation. Essentially, this is possible if the financial products, solutions and instruments

supporting the environment are provided in sufficient numbers and depth, and if these investors are made interested in financing the green transition, whether financially or morally. Whatever the driving force, the public sector can stimulate the transition both directly and indirectly. Direct incentives may include public funds dedicated to supporting green transition and transformation of the regulatory environment, while indirect incentives can come from the consistent communication of values. In the wider context of state involvement, the role of central banks should also be discussed. Generally, the primary objective of central banks is to achieve and maintain price stability and to maintain the stability of the financial system without jeopardising it, but recently climate change, and sustainability in the broader sense, has given many central banks a new focus.

The early 2020s saw a global phenomenon with an increasing number of central banks making a stand on climate change, sustainability, and particularly environmental sustainability. The impacts of climate change, as a major challenge of the 21st century, became the subject of extensive research, exploring primarily the impacts of climate change on actors of the financial system from a perspective of financial stability. It is no longer a question, and there is an almost universal consensus among central banks about the need to address climate change, but opinions vary on the extent to which central banks should intervene in this area. According to some central banks, tackling climate change is the exclusive responsibility of governments, and central banks should continue to focus on their current mandates. On the other hand, there are central banks that not only address the issue of climate change, but also deploy specific tools to promote green transition within their countries. In this respect, the MNB is a leader.

Moreover, the matter is no longer confined to the European, Asian, or more recently, the US central banking communities, as some major international organisations including the UN, the IMF, the OECD and the Financial Stability Board are now giving special priority to issues such as greening the financial system, supporting the green transition of economies, researching the negative effects of climate change on financial stability, and exploring possible responses. Also, new international initiatives have been launched, most notably the Network for Greening the Financial System (NGFS), which was established in 2017. In June 2022, the NGFS had 116 members and 19 observers dedicated to developing climate risk management tools for the financial sector by sharing expertise and best practices. Among the members there are several central banks, including major ones such as the US Federal Reserve, the European Central Bank, and the Bank of Japan. The MNB was one of the first central banks to join the NGFS.

The way in which central banks are thinking about climate change is certainly becoming deeper, and now the discussion is not only about the physical and adaptational impact of climate change on financial institutions and the financial system itself, but also about the impact of the green transition on inflation, as climate change is creeping into classical monetary policy areas, too. This is a huge opportunity, but how far this can take root and become mainstream, for example, in central bank reserve management, remains to be seen. In a world with no inflationary pressures and low interest rates, which lasted until 2022, central banks were able to pay more attention to climate issues and impacts. But no matter how progressive central banks are in the fight against climate change, none of them can afford to lose sight of their role and the fact that their mission and primary objective is to achieve and maintain price

stability. The extent to which central banks will have the opportunity, in addition to their price stability efforts, to promote green transition through various targeted programmes and creative solutions is a big question, and can be a real challenge. The responses given by the central banks also vary widely. Those with a more conservative view on green transition now see their approach justified, while the progressive ones may find an opportunity, even in the current situation, to demonstrate a commitment to environmental sustainability in practical ways, upholding their reputation along the way.

## THE ROLE OF THE MNB IN DEVELOPING A GREEN FINANCING ENVIRONMENT IN HUNGARY

The Hungarian central bank responded early and strongly to sustainability challenges, and is one of the most progressive central banks in the world in the field of environmental sustainability. While globally the extension of the role of central banks has only been raised at a theoretical level, the MNB has taken concrete steps to support a financing environment that promotes sustainability. First of all, it should be noted that the MNB's objectives are fundamentally the same as those of other central banks, with the primary goal to achieve and maintain price stability, to maintain the stability of the financial system without jeopardising it, and to support the government's economic policies, in accordance with its statutory mandate. In 2021, however, the Parliament decided to add the promotion of environmental sustainability to the statutory objectives of the central bank. With this, the MNB has essentially been given the green light to contribute to environmental and sustainability objectives without compromising its primary mission

(MNB, 2021). This represents a unique milestone, as the Hungarian central bank is the first in Europe to hold such a mandate. It also shows that in Hungary, the central bank is clearly expected to give priority to environmental sustainability and to do its best to help integrate this view into the thinking of financial actors.

However, this mission started not with the received direct mandate, as the central bank's role in supporting the government's economic policy, given its commitment to environmental sustainability, is also understood to include such a goal. This was perhaps already implicit in the central bank's initial objectives, but its clear and open declaration represents a direct commitment and task for the central bank. The MNB took on the issue already in 2019, as it was clear that greening the financial sector was essential to achieve the SDGs and Hungary's climate neutrality goals. As a first step, the central bank introduced a Green Programme.

The Green Programme aims to build a strong and resilient financial system, particularly against climate and environmental shocks, and to identify the financial risks related to them. In connection with this – and contributing to Hungary's green economic transition – the continuous development of a green financing environment is critical. Education, research, and domestic and international networking are additional elements that are key to the development of green finance. Finally, climate neutrality in the Hungarian central bank's operational and business activities, and the full disclosure of climate related financial and non-financial data is the third key objective of the MNB's green programme primarily focusing on financial stability (MNB, 2019).

As another important milestone following the launch of the Green Programme focusing on financial stability, the MNB started to green its monetary policy instruments and in

2021, it announced a green monetary policy toolkit strategy. While outlining the possible directions, particular attention is paid to ensuring that the integration of environmental sustainability does not compromise the core monetary policy objectives of the instruments. In addition to supporting climate objectives, the programme aims, among others, to support sustainable economic transformation, and to assess, evaluate and report on the climate exposure of monetary policy instruments. Ultimately, by supporting the transition to a low-emission economy, additional green and sustainable financial instruments can be created. The Green Monetary Strategy also has a mission to promote green financial awareness and attitude shaping within the society in accordance with the Green Programme.

The above key strategies are essential for the sustainability efforts of the Hungarian central bank, and they clearly reflect measures for developing a green financing environment as a key area for sustainable transition and decarbonisation.

## SPECIFIC MEASURES OF THE MNB TO SUPPORT SUSTAINABLE FINANCE

Although the MNB's Green Preferential Capital Requirement Programme for businesses and municipalities was introduced primarily to reduce the climate exposure of credit institutions, it has facilitated a rise in green financing instruments, and particularly the promotion of green lending. The programme launched at the end of 2020 initially covered the financing of energy efficiency and renewable energy investments and the purchase of green bonds issued by banks, allowing banks to claim the incentive for a total of HUF 166 billion of lending by the end of the first half of 2021. In view of its initial success, the scope of eligible areas was

eventually expanded to include agricultural, electromobility, green commercial real estate and other green framework transactions. With the extension of the scheme, the range of sustainable investments widened, resulting in approximately HUF 330 billion worth lending eligible for capital relief at the end of the first quarter of 2022. Looking back, the incentive has indeed been successful in channelling resources towards sustainable investments.

In addition to promoting green lending, mobilising the capital market is essential to achieve Hungary's climate and environmental goals as quickly as possible. Moreover, the financial risks arising from climate change and environmental degradation not only affect credit institutions, but also pose a significant threat to the stability of capital market players, such as insurers and fund managers. However, an increase in green exposure compared to 'brown' assets will improve the balance sheet of financial actors, allowing them to be more resilient to climate risks, while promoting the spread of green financial instruments. As discussed in previous chapters, green bonds, for example, are considered to be the most popular form of financing green investments on a global level. Green bond issuance has increased impressively in Hungary as well, although its share in the overall bond market is still low. Given the small number of domestic green financial instruments, the investment funds taking into account ESG considerations that are fairly novel in Hungary also tend to select their investments in more developed Western markets, so in essence, the majority of assets under management are not invested in Hungary. To develop the domestic green capital market, the MNB's Green Programme has been complemented with a sustainable capital market strategy, with recommendations from the European Bank for Reconstruction and Development (EBRD) and Deloitte to support its action plan. The strategy aims

to identify and address potential market failures and to create a supportive regulatory environment. With the implementation of the action plan, it is expected that the capital market will be able to finance domestic environmental sustainability investments to a much greater extent than at present, thereby contributing to Hungary's environmental and climate objectives.

In addition to greening financing options, the MNB's sustainability strategies set the goal of boosting knowledge and awareness of green finance among the general public and consumers in Hungary. In line with this, the MNB is planning to launch a Green Financial Product Finder website, which is currently under development. The aim is to promote the dissemination and accessibility of green financial instruments to the general public. The website will make it possible to compare investment products so that retail investors can choose sustainable investments best suited to their needs. Drawing attention to domestic green financial instruments can be a booster for the financial actors as well, encouraging the development of further sustainable forms of finance as quickly as possible.

## THE MNB'S GREEN MONETARY POLICY TOOLKIT STRATEGY FOR SUSTAINABLE FINANCE

The strategy launched in the autumn of 2021 has so far resulted in two interlinked initiatives to strengthen domestic sustainable finance. The MNB launched its Green Mortgage Bond Purchase Programme in line with the green toolkit strategy. The aim of the programme was to create a domestic green mortgage bond market and to increase green mortgage bond issuance. The initiative indirectly supports the rise in green mortgage loans through targeted purchases, which will help modernise

the energy efficiency of the energy-intensive housing stock. With this move, the MNB encourages commercial banks to consider the energy performance of properties in their mortgage lending practices. In addition to the emergence of new green financial instruments, the programme supports market stability and transparency by requiring issuers to disclose the energy characteristics of the mortgage bond and the properties that serve as collateral for the mortgage securing it. On the other hand, the issuer is required to inform clients on the contribution of consumer mortgages to environmental sustainability objectives.

As a monetary policy instrument focusing on energy efficiency and environmental sustainability in the real estate sector, the FGS Green Home Programme was launched as a refinancing instrument under the Funding for Growth Scheme for retail loans to create a healthier housing stock in Hungary. The aim of the Green Home Programme was for the MNB to provide refinancing to credit institutions at 0% interest, with banks offering retail loans for new homes at a maximum interest rate of 2.5%. The programme provided low-cost financing for the construction or purchase of energy-efficient green homes for the general public. In Hungary at least 90% of the housing stock is considered to be energy inefficient (HuGBC, 2020), and therefore responsible for 30% of domestic emissions (Hungarian Central Statistical Office/KSH, 2021). The programme also created a business opportunity for credit institutions, while supporting the emergence of dedicated green loan products. Lending was restricted to the purchase or construction of energy-efficient residential homes with a BB or superior rating up to a primary energy demand of 90 kWh/m<sup>2</sup>/year, a maximum amount of HUF 70 million, and a maximum term of 25 years. The FGS Green Home Programme thus facilitated the emergence of a green mortgage lending market

and the mainstreaming of environmental sustainability through preferential terms, with the MNB fully sterilising the liquidity issued in the programme. To illustrate the need for the initiative, the volume of loan applications submitted to credit institutions reached the HUF 200 billion limit already in the spring of 2022. The Monetary Council eventually decided to increase the limit by a further HUF 100 billion, while conditions were tightened. Although the current macro environment and inflationary risks resulting from Covid-19 and the Russian-Ukrainian conflict call for a tight monetary policy stance, the central bank remains committed to its programmes promoting environmental sustainability.

## CONCLUSION

The study concluded that the decarbonisation of the Hungarian economy is essential not only to achieve its environmental and climate protection goals, as the transition to a low-carbon economy can strengthen the macroeconomic structure and reduce the need for energy imports, thereby improving the energy security of Hungary. In view of the current economic and war situation, this is of particular importance. To achieve climate-neutrality by 2050, Hungary will need hundreds of billions of euros in investment and financing, which the public sector alone will not be able to provide, and which makes the involvement of private capital critical. Recent years have seen the emergence of sustainable financial instruments to finance the green transition of the Hungarian economy, although their volume is still far from that of the developed Western European markets. As the financial impacts from climate change and other environmental degradation threaten the stability of the financial system as well, central banks also have an interest in decarbonising

economy. The MNB was one of the first central banks to address the financial implications of climate change. Without compromising its primary objective, the MNB seeks to ensure that the Hungarian financial intermediary system develops the ability and resilience to withstand the increasing environmental and

climate threats. In addition, the central bank has taken a number of measures to develop a green financing environment in Hungary. With the right incentives, the financial actors can be mobilised and, as a result, the financial sector can increasingly contribute to Hungary's transition to climate neutrality. ■

## REFERENCES

BLOOMBERGNEF (2022). Sustainable Finance Market Outlook.

NORDHAUS, W. (2013). *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*. Yale University Press, New Haven.

### ONLINE REFERENCES

BP (2022). *CO<sub>2</sub> emissions, Statistical Review of World Energy – all data 1965–2021*. Online: <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/co2-emissions.html> [Accessed: 02 August 2022]

Cambridge Econometrics (2021). *Magyarország profitálna a legjobban a régióban abból, ha komolyan vennék a klímaváltozást [Hungary would benefit the most in the region from taking climate change seriously]*. Online: <https://forbes.hu/zold/cambridge-econometrics-2021/> [Accessed: 30 June 2022]

Economist Intelligence Unit (2022). *Europe chart of the day: Europe's Russian gas dependency*. Online: <https://country.eiu.com/article.aspx?articleid=411900624&Country=Italy&topic=Politics&subtopic=Forecast&subsubtopic=International+relations&u=1&pid=461980429&oid=741980057> [Accessed: 30 June 2022]

HuGBC (2020). *82 év alatt újulhat meg a teljes hazai családi ház-állomány [It would take*

*82 years to renew the entire stock of family homes in Hungary]*. Online: <https://www.hugbc.hu/hirek/82-ev-alatt-ujulhat-meg-a-teljes-hazai-csaladi-haz-allomany/4158> [Accessed: 29 June 2022]

ITM (2021). *Nemzeti Tiszta Fejlődési Stratégia [National Clean Development Strategy of Hungary]*. Online: <https://kormany.hu/dokumentumtar/nemzeti-tiszta-fejlodesi-strategia> [Accessed: 30 June 2022]

KSH (2021). *Nemzetgazdasági ágak és háztartások üvegházhatásúgáz-kibocsátása [GHG emissions by economic sectors and households]*. Online: [ps://www.ksh.hu/stadat\\_files/kor/hu/kor0018.html](https://www.ksh.hu/stadat_files/kor/hu/kor0018.html) [Accessed: 29 June 2022]

McKinsey (2022). *Klímasemleges Magyarország [Carbon-neutral Hungary]*. Online: [https://www.mckinsey.com/-/media/mckinsey/business%20functions/sustainability/our%20insights/carbon%20neutral%20hungary/report-carbon-neutral-hungary\\_hungarian.pdf](https://www.mckinsey.com/-/media/mckinsey/business%20functions/sustainability/our%20insights/carbon%20neutral%20hungary/report-carbon-neutral-hungary_hungarian.pdf) [Accessed: 30 June 2022]

MEKH (2022). *Energiastatisztika 2021. éves riport (Előzetes adatok) [Energy Statistics 2021 (Preliminary data)]*. Online: [http://www.mekh.hu/download/2/47/11000/Energiastatisztika\\_2021%20%C3%A9ves%20riport\\_el%C5%91zetes%20adatok.pdf](http://www.mekh.hu/download/2/47/11000/Energiastatisztika_2021%20%C3%A9ves%20riport_el%C5%91zetes%20adatok.pdf) [Accessed: 30 June 2022]

MNB (2022). *Körkép a jegybankok és nemzetközi szervezetek zöld programjairól [Overview of green*



*programmes adopted by central banks and international organisations*]Online: [mnb-tanulma-ny-sandor-et-al-nemzetkozi-zold-korkep.pdf](https://www.mnb.hu/letoltes/az-mnb-zold-programja-1.pdf)

MNB (2019). *Az MNB Zöld Programja [MNB Green Programme]*. Online: <https://www.mnb.hu/letoltes/az-mnb-zold-programja-1.pdf> [Accessed: 17 June 2022]

MNB (2021). *Az Országgyűlés fenntarthatósági mandátummal ruházta fel az MNB-t [Parliament gives MNB sustainability mandate]*. Online: <https://www.mnb.hu/sajtoszoba/sajtkozlomenyek/2021-evi-sajtkozlomenyek/az-orszaggyules-fenntarthatosagi-mandatummal-ruhazta-fel-az-mnb-t> [Accessed: 17 June 2022]

MNB (2022). *Zöld Pénzügyi Jelentés [Green Finance Report]*. Online: <https://www.mnb.hu/letoltes/zold-penzugyi-jelentes-2022.pdf> [Accessed: 17 June 2022]

OMSZ (2022). *Üvegházhatású gázok leltára Magyarországon [Greenhouse Gas Inventory, Hungary]*. Online: <https://legszenyezettség.met.hu/kibocsatas/agazati-kibocsatasok> [Accessed: 30 June 2022]

SIPRI (2022). Online: <https://www.sipri.org/media/press-release/2022/world-military-expenditure-passes-2-trillion-first-time> [Accessed: 30 June 2022]

Tyndall Centre for Climate Change Research (2018). Online: [https://tyndall.ac.uk/wp-content/uploads/2021/11/briefing\\_note\\_risks\\_warren\\_r1-1.pdf](https://tyndall.ac.uk/wp-content/uploads/2021/11/briefing_note_risks_warren_r1-1.pdf) [Accessed: 30 June 2022]

Vivid Economics (2021). *Net Zero Financing Roadmaps*. Online: <https://assets.bbhub.io/company/sites/63/2021/10/NZFRs-Key-Messages.pdf> [Accessed: 30 June 2022]