Generating Electricity from Renewable Sources in CEE & SEE

Energy Industry Group

Hungary

Wolf Theiss

Country General Information

Capital: Budapest

Location: Hungary is situated in Central Europe in the Carpathian Basin and shares a border with Slovakia to the north, Ukraine to the north-east, Romania to the east and south-east, Serbia to the south, Croatia and Slovenia to the south-west, and Austria to the west.

Surface: Hungary is a mid-sized country spanning 93,030 km².

Population: 10 million

Climate: Hungary has a temperate seasonal climate with four distinct seasons.

Resources: Hungary's geography has traditionally been defined by its two main waterways, the Danube and Tisza rivers. The main natural resource of the country is the black soil of its farmlands. The alluvial soils of the Great Hungarian Plain are highly fertile. Soils in the northern highland river basins are also generally fertile. The nation's main mineral resources are bauxite, coal, oil, natural gas, manganese, uranium, lignite and iron ore.

Electricity Grid: The total length of the transmission system network is 4,897 km, which is comprised of 750 kV, 400 kV, 220 kV and 132 kV overhead lines and 132 kV high voltage cables. The total route length of the network is 169 764 km.

Electricity Transmission, Distribution and Supply: The current structure of the Hungarian electricity market began to take shape around 1995, when the majority of the large power plants, the public utility suppliers and the distribution networks were privatised. Currently, domestic power plants sell the majority of their generated power output through agreements with the TSO or traders. A significant part of the purchases takes place on the secondary trade market. The TSO has the exclusive right to operate and maintain the Hungarian transmission system network. The distribution systems are operated by 6 regional DSOs.

Official Language(s): Hungarian

EU Member: since 2004.

NATO Member: since 1999.

United Nations Member: since 1955.

Currency: Hungarian Forint (HUF)

Schengen: since 2007.

Political System, Administrative Organisation and Economy: Hungary is a parliamentary republic with a government led by the prime minister, exercising executive power, and a head of state (the president of the republic) whose primary responsibilities are related to security of the constitutional democracy, representation of the country and special orders of state. The country is divided into 19 counties plus the capital (Budapest) as an independent entity.

1. Defined Terms for the Main Permits required for the RES-Electricity Generation Facilities

DSO	means the authorized distribution system operators in Hungary, currently, E.ON Dél-dunántúli Áramhálózati Zrt., E.ON Észak-dunántúli Áramhálózati Zrt., OPUS TITÁSZ Áramhálózati Zrt., ELMŰ Hálózati Kft., MVM Émász Áramhálózati Kft., and MVM Démász Áramhálózati Kft.;
FiT	means the so-called „feed-in tariff“ support scheme regulated mostly by Government Decree No. 389/2007. (XII. 23.), where the RES-Electricity is sold for a mandatory off-take price;
GoO	means guarantees of origin;
HEPURA	means the Hungarian Energy and Public Utility Regulatory Authority;
METÁR	means the so-called „premium support“ scheme regulated by the METÁR Decree, where RES-Electricity is sold for either a mandatory off-take price (in case of small projects below 0.5 MW and demonstrative projects) or a market price with price correction (i.e., projects above 0.5 MW);
METÁR Decree	means Government Decree No. 299/2017. (X. 17.) on the feed-in tariff for renewable electricity and the premium tariff;
PPA	means power purchase agreement;
RES	means renewable energy sources in general, such as wind, solar, aerothermal, geothermal, hydrothermal and oceanic waves, hydraulic, biomass and biogas;
RES-Electricity	means the electricity generated from RES;
RRF	means the Recovery and Resilience Facility;
TSO	means the transmission system operator in Hungary, i.e., MAVIR Zrt.

2. Envisaged Investments in Hungary

2.1 National Energy Strategy of Hungary

The evolving landscape of the energy sector in Europe anticipates significant market transformations. Therefore, Hungary, recognising the strategic importance of the energy sector, has renewed its National Energy Strategy to align with recent technological and market changes, EU regulations, and state asset policies. The updated strategy aims to bolster energy sovereignty and security, sustain the benefits of reduced energy costs, and decarbonize energy production through a mix of nuclear and renewable sources, crucial for countries like Hungary with limited traditional energy resources. Key measures include investments such as:

a. investments promoting the on-site use of RES-Electricity among consumers;

b. investments in the development and stability of the electricity grid, such as the establishment of new gas-fired power generation capacities and investments in energy storage facilities;

c. investments in nuclear energy, in particular supporting the commissioning of the Paks 2 project;

d. investments in biogas and biomass power plants and other forms of geothermal energy;

e. high value-added investments and investments in low energy consumption, energy storage or carbon capture and use;

f. investments in the increased utilisation of non-recyclable waste in heat generation;

g. investments in the establishment of decentralised, gradually connected district heating islands;

h. investments in the “greening” of transportation including the establishment of electric charging stations; and

i. investments in the development of alternative green fuels.

The revised National Energy Strategy and the related action plans provide a vision for the future of the Hungarian climate and energy sector up to 2030, while also providing an outlook towards 2040. The main objectives are to make the energy sector "clean, smart and affordable", focusing on consumers, (i.e., strengthening of security of supply, making the energy sector climate-friendly, and promoting innovation and economic development). The National Energy Strategy envisages a progressively transformative electricity market dominated by solar and nuclear power, with fossil electricity generation contributing only 10%.

Renewable energy is one of the main focus areas with clear targets for the electricity, thermal and transportation sectors, setting a 21.3% share of RES in the electricity sector, 28.7% RES in the heating and cooling sector and 16.9% RES in the transportation sector by 2030.

Achieving these targets will ensure a far more stable and balanced renewable energy mix. In view of the growing importance of weather-dependent, mainly photovoltaic generation capacity in RES-Electricity production, the strategy aims to increase solar capacity to nearly 6,500 MW by 2030 and to nearly 12,000 MW by 2040. In addition, similar expansion is anticipated for wind turbines, despite the currently low installed capacity (expected to increase from approximately 330 MW to 1,000 MW).

With the increasing electricity load and demand on the system, it is crucial to improve and increase flexibility., Therefore, the classic and smart grid developments of the TSO and the DSOs (such as developing new gas-fired power generation capacities and energy storage capacities) is a must in order to integrate more solar energy without compromising security of supply.

"Greening" transportation is also an important aspect of fighting climate change, with a particular emphasis on the development of railways, which are significantly more climate-friendly than internal combustion engine road transportation. The Hungarian Government has also launched a major "green" programme with a number of tenders for electric cars, buses and bicycles in recent years.

2.2 Recovery and Resilience Facility

The Recovery and Resilience Facility (RRF) stands as a temporary instrument at the forefront of NextGenerationEU, the European Union's plan for emerging stronger and more resilient from the energy crisis of recent years. The RRF funds are allocated to EU Member States to undertake bold reforms and investments. The overarching goals are to foster sustainability, resilience, and readiness for the green and digital transitions, aligning with EU priorities, and to address specific challenges highlighted in country-specific recommendations. Moreover, the RRF plays a pivotal role in realising the REPowerEU plan, the Commission's response to the socio-economic hardships and global energy market disruptions triggered by Russia's invasion of Ukraine.

Entering into force on 19 February 2021, the Facility financed reforms and investments from the onset of the pandemic in February 2020, and will continue to do so until 31 December 2026. Member States can access financing up to a predetermined maximum amount. To tap into support from RRF, EU governments have submitted national recovery and resilience plans delineating reforms and investments to be executed by the end of 2026, complete with clear milestones and targets. Notably, these plans are required to allocate a minimum of 37% of their budget to green measures and 20% to digital measures. Hungary's plan includes 13 reforms and 16 investments to reduce its reliance on fossil fuels. To finance this increased ambition, Hungary has requested to take up EUR 3,918 million in loans, in addition to Hungary's REPowerEU grant of EUR 700.5 million.

The RRF operates on a performance-based model. This means that the Commission disburses funds to each country only upon the attainment of agreed milestones and targets, reflecting progress towards the completion of reforms and investments outlined in their plan. Until now, the Commission has disbursed EUR 919.6 million in pre-financing to Hungary.

3. Executive Summary – RES Market Status and Development of RES-Electricity Facilities

3.1 Market Overview – Factsheets

As at the end of 2022, Hungary has witnessed a significant growth in its domestic electricity system, with the installed capacity increasing from 11,440.8 MW to 12,475.3 MW. This notable 9 percent increase was predominantly fuelled by the connection of new solar power plants, contributing 666.8 MW, and the growing capacity of small-scale household power plants, adding an additional 367.7 MW. The solar sector has particularly flourished, reaching a total capacity of 2,524.9 MW, constituting almost one-third of the overall installed capacity. This marks a substantial 6.4 percent increase from the previous year.

Notably, nearly two-thirds of the increased photovoltaic capacity can be attributed to industrial-scale solar power plants. This emphasises a strategic shift towards larger solar installations. Concurrently, the installed capacity of conventional power plants has experienced a decline, although there are prospects for new combined cycle power plants in the upcoming years.

While the legal environment in Hungary has thus far hindered the establishment of newly constructed wind farms over the past decade, the electricity system currently boasts 323.3 MW of installed wind power capacity, generating 585 GWh of electricity in 2022.

The integration of weather-dependent power plants, particularly solar, has introduced challenges in managing the electricity system. In 2022, this impact was evident at the transmission system level, prompting the transmission system operator to procure additional reserves to ensure stability. The growing reliance on renewable energy sources, coupled with the intermittent nature of these sources, poses an ongoing challenge for control of the electricity system. Given the evolving energy landscape, control of the electricity system has become more complex. To address this, the transmission system operator has implemented measures to enhance the efficiency of the balancing regulation market. New products have been introduced, and modifications to the reserve balancing methodology in the capacity market in 2023 aim to improve cost efficiency. These regulatory initiatives reflect a proactive approach to adapting to the changing dynamics of the energy sector and ensuring the reliable operation of the Hungarian electricity system.

Hungary's electricity system is connected with all neighbouring countries, with cross-border transmission cables reaching approximately 50 percent of the nation's gross installed capacity. This surpasses the EU target of 15 percent, providing Hungary with significant transmission capacities for flexible diversification of commercial transactions. The existing infrastructure facilitates robust cross-border connections, enhancing regional energy cooperation.

Hydropower plants have a total installed capacity of 61 MW, capable of generating 168 GWh of electricity.

The Paks nuclear power plant currently produces around half of the electricity generated in Hungary. The Hungarian Government decided to build two new reactors with a total capacity of 2,400 MW.

As a climate protection technology, the development of a hydrogen economy is noteworthy. As an example of greening hydrogen production, the surplus electricity generated at night at the Paks nuclear power plant or unused solar energy could be used.

3.2 Support Schemes

Most of the RES-Electricity projects that have already reached the operational phase in Hungary are supported under the FiT or METÁR system. The FiT system was replaced by the METÁR system on 1 January 2017 (i.e., applications can no longer be submitted, but the FiT entitlements already granted remain in force). Under the FiT system, the electricity generated is sold to the TSO at a fixed price, whereas under the new METÁR system the electricity is sold mainly to traders or on the power exchange with price corrections.

The METÁR system was originally designed for new projects (i.e., those that had not yet started to be implemented at the time of submitting an application for support). The system is intended to have five separate branches for different target audiences. In reality, however, only the so-called "green premium granted through tendering" system for installed capacities over 1 MW is currently available, although a new call for tenders has been pending since 2022.

The HEPURA is the central agency for the FiT and METÁR systems. The FiT price, the supported quantity and the support period, as well as the margin of METÁR price correction, are all defined by HEPURA.

As the Hungarian energy market has undergone significant changes due to the energy crisis in Europe, support schemes have been marginalised. Concurrently, there has been a notable increase in the use of PPAs as an alternative to the previously popular support schemes.

4. Key changes to the RES legislation since 2022

4.1 Further Developments in Grid Connection Rules

Over the past two years, the landscape of grid connection regulations has undergone significant fluctuations, adapting to the dynamic shifts within the energy sector. These alterations aim to foster a transparent, secure, and efficient system that caters to the needs of developers, consumers, the TSO, and the DSOs. The key transformations that have emerged during this period are the following:

- In December 2022, the Hungarian Government significantly tightened the grid connection rules for weather-dependent power plants. Developers with a valid grid connection right (but at least a technical-economic information sheet, or *"műszaki-gazdasági tájékoztató (MGT)"* in Hungarian) were compelled to declare their intended grid connection year to the TSO or the DSOs, which was new from the previous quite flexible connection timelines. Based on these declarations, the TSO and the DSOs conducted load calculations and, if necessary, had the right to postpone the grid connections until 2027. The approved grid connection date now operates within a one-year window from 30 January of a given year to 30 January of the following year. Additionally, new payment obligations were also introduced, requiring developers to pay securities or provide a bank guarantee. The financial securities paid will be included in the grid connection fee and credited by the TSO or the DSOs in the earliest grid connection fee instalment due. The second publication procedure to secure free capacities in the system took place on 30 November 2023 under these new tightened rules, in which developers could apply for grid connection rights from 2029.
- In March 2024, with the goal of managing increased grid capacity demand outlined in the second publication procedure efficiently and equitably, alterations to the grid connection rules have been made again. These changes may present challenges for some developers, as they face tighter restrictions on grid access until 2030. Among the key changes, capacity requests for

connection beyond 2030 are generally rejected, and an order of preference has been established to prioritize eligible applications. The new rules also mandate transparent publication of granted connection rights and introduce additional financial guarantees for eligible applicants. Moreover, looking ahead, a new capacity allocation regime is anticipated by the end of the year, marking a significant shift in the allocation process.

- As at 2024, the Hungarian Government has introduced new regulations in order to clarify how property owners and tenants could establish weather-dependent on-site power plants (e.g., solar and wind) and sell electricity to businesses on their premises. The regulations provide guidance on establishing private cable lines and grids, allowing users to plan private grids not only for their energy consumption but also for supplying on-site consumers, expanding opportunities for on-site electricity sales. Additionally, the amendment addresses the expansion of electricity sharing, according to which consumers have the option to sell the electricity passed on or generated by them within their consumption site.
- A defining innovation is that power plants or storage units operated on a property adjacent to the designated consumption site – or reasonably close to it in case of power plants over 5 MW capacity – can directly connect to the site's private grid. This requires the construction of an interconnector (production) line, but the cost of this can be recovered realistically by not using the public grid for energy transmission. If the producer supplies only on-site consumers, it may even be exempted from the obligation to compete for scarce feed-in capacity to the public network or to bear the costs of its development. A further condition is that electricity produced or stored by the power plant / storage facility must not result in any change in the feed-in capacity of the grid connection point of the site supplied and that only one site can be connected to a power plant or electricity storage facility.
- The concept of a self-sustaining generation unit has also been introduced. These units, with a minimum of 5 MW capacity, connect to the public grid without a feed-in capacity. They share generated electricity at the same connection point with users or consumers within the same corporate group. A self-sustaining generation permit is required for their establishment, following rules like those for power plants of 50 MW or more. Regulating self-sustaining generation units aims to promote sustainable and efficient electricity generation. The permit enables facility modernisation and capacity expansion while maintaining necessary controls for grid stability.

The foregoing provisions will undoubtedly have a significant impact on domestic solar power developments. On the one hand, investors had already devoted substantial financial resources to many projects, and the above restrictions resulted in significant changes in their business models in the short term. Consequently, not all investors have been able to adapt to the new regulatory environment quickly enough. The increased financial costs and the reduced opportunity for allocation of grid connection capacities certainly narrows the range of potential investments. On the other hand, the amendments regarding on-site projects will unlock new business opportunities for alternative, decentralized energy systems. The new rules will help achieve this by clarifying the legal framework for on-site energy supply. Under the new regulations, installing power plants in proximity to large industrial consumers will become a more attractive option, as private lines may be exempted from paying system charges by directly supplying to the user.

4.2 A Positive Outlook for Wind Energy

From the outset, the regulation of wind energy in Hungary has been restrictive compared to European standards, with significant limitations to the size of the areas suitable for investment and a strict, bureaucratic licensing procedure. In 2016, various legislative amendments essentially prohibited the installation of wind farms in Hungary. They imposed technical conditions that wind turbines had to be built in accordance with the currently available knowledge – a condition that was difficult to meet. Although the legal environment in Hungary has not allowed for newly built windfarms in the last decade, the electricity system still has 323.3 MW of installed wind power capacity, which generated 585 GWh of electricity in 2022 as highlighted above.

Presently, the European Union's RRF should reinvigorate the Hungarian wind energy market. The facilitation of onshore wind investments is one of the reforms listed in Hungary's Recovery and Resilience Plan, which should bring a boost to this sector.

In essence, by reason of this national plan, the regulatory framework has been amended in order to remove unnecessary limitations. In particular, the distance requirement will be reduced (from the prior 12 kilometres to 700 metres) for the proximity of wind turbines and their power generating capacity to settlements. Tenders will also no longer be required to obtain the right to build wind farms. In addition, through the creation of designated target areas in parts of the country where wind energy density and wind speeds are favourable, developers will be able to obtain a specific simplified authorisation procedure for the installation of wind farms, with shorter procedural deadlines.

4.3 Tighter Rules on FDI Clearances

The beginning of 2024 has also brought significant changes in the field of foreign direct investment (FDI) screening in Hungary. As at January 2024, Hungary has tightened its already restrictive rules on the transitional FDI regime, thereby narrowing current exemptions and introducing a right of first refusal for the Hungarian State in solar power plant investments. The amended rules limit the range of transactions exempt from FDI clearance, retaining only foreign transactions as an exception, provided that they are purely foreign-to-foreign transactions and do not result in a change in the direct ownership structure of the Hungarian target company (subordinated affiliate).

Another novelty of the new rules amending the transitional FDI regime is that it grants the Hungarian State a right of first refusal in respect of domestic strategic target companies that are planning to be acquired by foreign investors for the implementation of photovoltaic (solar) projects. According to the new rules, if the sale and purchase transaction subject to prior approval is concluded in respect of a strategic target company whose main or additional activity (in Hungarian: *"TEÁOR"*) is electricity generation and which is engaged in solar power plant activities, the Hungarian State will have a statutory right of first refusal before any other party.

The process involves a thorough examination by the competent minister, followed by a decision from the minister responsible for energy policy on the exercise of the right of first refusal. This decision and the relevant documentation will be forwarded to the Hungarian National Asset Management Zrt. and at the same time to the competent minister conducting the FDI clearance. The competent minister will terminate the FDI clearance procedure, expressly stating that the minister responsible for energy policy is of the opinion that the exercise of the right of first refusal is justified.

Thereafter, the minister responsible for energy policy must become the beneficiary of the State's ownership rights and obligations over strategic target companies acquired through the right of first refusal, which will be transferred to the state-owned MVM Zrt. within 6 months. Financial coverage for these acquisitions will be provided in the national budget.

For further details regarding Hungary's current FDI system, please refer to our international comparative legal guide, available at https://www.wolftheiss.com/insights/foreign-direct-investment-regimes-2023/.

4.4 Geothermal Energy

So far, geothermal energy has remained largely untapped despite its considerable potential in Hungary. Geothermal energy holds promise as a reliable and sustainable energy source due to Hungary's geological characteristics. In recent years, there has been growing interest from both domestic and international stakeholders in harnessing Hungary's geothermal potential.

Recognising this, Hungary has implemented comprehensive legislation to regulate geothermal energy exploration and utilisation. The key aspects of Hungary's geothermal legislation include licensing procedures for exploration and exploitation activities, and incentives to promote investment in geothermal projects. The geothermal legislation also addresses environmental protection measures, such as monitoring and mitigation of potential impacts on groundwater quality and surface ecosystems.

By providing a clear regulatory framework and incentives for investment, Hungary aims to promote the development of geothermal energy as a key component of its renewable energy strategy.

5. Significant and/or expected changes in 2024

5.1 Power Purchase Agreements (PPA)

In line with EU trends, there is also a growing interest and enthusiasm for long-term PPAs in Hungary. Through PPAs, stakeholders can mitigate the risks of electricity price increases and fluctuations on the market by ensuring long-term price fixing. The scheme can provide additional benefits for both producers and end-users compared to traditional market solutions. For the producer, because normal market conditions might not allow it to make such a capital-intensive investment. For the user, because it will enable them to meet a significant part of their energy needs from renewable sources, in line with increasing sustainability requirements. This is all the more true in the face of the electricity market prices that have increased in parallel with the boom in natural gas prices over the past years.

However, in Hungary, the overwhelming majority of electricity producers are in the FiT System. Hence, there is little to no market practice for PV-based PPAs. Both traders and large corporations are only beginning to assess the possibilities in solar projects, and there are no established practices or standard legal procedures in any terms. Although PPAs and related investments are theoretically feasible in Hungary, there are currently several factors hindering the uptake of the scheme, on the part of producers, end-users and regulators alike:

a. When talking about renewables, there are legitimate concerns about security of supply, which are not only a barrier to the deployment of renewables in this country and not only for PPAs, but also for renewables in general. Renewables are not capable of continuous baseload generation, which understandably makes users wary of them.

b. Domestic consumers of Hungarian companies are not yet environmentally conscious enough to be willing to pay more for more sustainable products, and in PPAs, at least under normal circumstances, they typically pay a premium over market prices.

c. Since PPAs are also financing schemes, the electricity producer takes on a financing risk through PPAs. Therefore, stable companies with a high credit rating are the most suitable partners for producers, which limits the potential range of Hungarian corporate users.

d. At present, the domestic financial sector is not prepared to handle the relatively complex PPA contracts, but under the right circumstances, are unlikely to shy away from the new scheme.

e. In the eyes of producers, a PPA also competes with the METÁR system, which offers better conditions for the producer, especially in terms of risk allocation and pricing, than are currently available with a PPA. The market therefore expects that CfD (contract for difference) clearing systems and contracts could be popular in Hungary, because they are physical PPAs and are similar in structure to METÁR, which increases their acceptance by banks and financiers.

f. The 41% Robin Hood tax on pre-tax profits is a significant barrier to the domestic expansion of PPAs. The tax is also payable by renewable electricity producers, unless they participate in the FiT or METÁR Systems.

So far, there has been no indication of whether the government or the regulator plans to take specific measures to facilitate the uptake of these agreements. Conservative estimates therefore suggest that a total of 200-300 MW solar projects developed through PPAs are likely to be completed within 4-5 years, initially in the physical PPA sector.

5.2 Robin Hood Tax

Energy suppliers (e.g., holders of a power generation license or electricity traders) are subject to the so-called Robin Hood tax, being a special 31% income tax (increased to 41% in the 2024 tax year) on the pre-tax profit of stakeholders, adjusted by certain tax base modifying items. An exception is made for those participating in the FiT or METÁR system and with a capacity below 50 MW. This tax burden puts prospective solar developments that would take place without the above subsidies in a doubly difficult situation: in addition to not receiving the state support in question, they will also have to pay the special Robin Hood tax.

Financial simulations show that the estimated return is significantly worse if the project does not participate in the FiT or METÁR system, (i.e., the electricity produced is sold entirely at market prices). The difference is mainly due to the Robin Hood tax payable outside the FiT and METÁR systems. In this case, the average annual return for the project is around 3 to 5% depending on the investment cost (for a new METÁR project, the average is between 6 to 8%), which rarely provides a sufficient return for investors.

Beyond those explained in Section 4.1, the developments in grid connection rules could also yield tax advantages. The introduction of self-sustaining generation units under the new regulations potentially exempts them from the Robin Hood tax, as they may not meet the criteria for classification as energy suppliers according to current laws. Nonetheless, the legislative language remains ambiguous, necessitating further clarification on this matter.

Overall, the current rules of the Robin Hood tax create a competitive disadvantage for small power plants not participating in the FiT or METÁR System. These circumstances significantly reduce the return on investment for projects without subsidies and thus reduce the chances of a positive investor decision. Without a positive legislative turnaround, change in this area is unlikely. However, there is no information on whether the legislature plans to change its approach to the tax in the near or distant future.

5.3 Energy Communities and Aggregators

The implementation of the EU Clean Energy Package introduced new actors to the Hungarian electricity market, namely the energy communities and independent aggregators, which are registered and supervised by HEPURA.

Aggregation is the combination of power plants, user installations and electricity storage facilities connected to the electricity grid or to a private line for the purpose of sale, purchase or auction on the energy market. By combining the production and consumption of smaller, individually inefficient actors, the aggregator can create a larger portfolio through which these actors can access the power exchange or other electricity markets.

Energy communities are cooperative or non-profit legal entities with the main purpose of providing environmental, economic and social benefits to their members operating within certain areas. These include at least one of the activities being in power generation, storage, consumption, provision of distribution flexibility services, electricity sharing and aggregation, provision of e-mobility services and/or operation of e-charging facilities. In a significant stride towards a sustainable and community-driven energy future, Hungary has recently registered its first energy community. This initiative is a model for future energy communities, emphasising the commitment to a greener future and tangible changes in energy production and consumption practices.

5.4 Guarantees of Origin

GoOs are tradable, electronic certifications proving to the final consumer that a certain quantity of the energy consumed has been produced from renewable energy sources. GoOs are in a privileged position: the amount of electricity from RES or from high-efficiency cogeneration can only be certified by GoOs in Hungary.

HEPURA operates the official registry of GoOs in its electronic management system. From 1 February 2022, this management system is compatible with the European Energy Certificate System (EECS). Consequently, Hungarian GoOs can be transferred to foreign management systems and the foreign GoOs can be more easily adopted to the Hungarian management system.

Due to the growing trend of GoO trading, the Hungarian power exchange (HUPX) launched a GoO market platform in 2022. During the first phase of the operation of the GoO market platform, the TSO, as the nominated buyer of Hungarian FiT production, was selling the related GoOs. Now other members of the GoO market platform can sell their GoOs, including non-FiT GoOs. According to HUPX, the GoO trading platform is highly liquid and transparent, aiming to strengthen the role of GoOs in the region.

6. Technical innovations

6.1 Electricity Storage

The domestic battery sector can play a key role in achieving the 2050 climate neutrality target. Accordingly, the Hungarian Government has set a clear goal for Hungary to become a leader in the battery industry. In August 2023, the approach to electricity production and consumption from renewable energy sources has taken a new turn, as battery energy storage systems are now among the investments that the Hungarian Government intends to support with financial incentives. A contract for a difference-based scheme has been set up that may reimburse developers or the Hungarian state for the difference between the prevailing market price and the strike price set under the subsidy, depending on how the market is performing (i.e., whether the market price is up or down compared to the strike price granted by the state budget).

Compensation is available not only to those feeding electricity into the public grid, but also to single-user providers irrespective of their feed-in capacity. This will be determined through a tendering process similarly used to support schemes for solar projects. Compensation is expected to be calculated on the basis of the difference between the claimed net revenue in the tender process (strike price) and the reference net revenue the developer earns through the sale of its services (market price). Should the claimed net revenue be lower than the reference net revenue, the TSO would be obligated to pay the shortfall to the developer, whereas if the claimed net revenue were to exceed the reference net revenue, the TSO would receive compensation from the developer.

The detailed rules of the scheme, (e.g., the calculation of the claimed net revenue and the reference net revenue, the eligibility criteria, and the accounting procedures), is determined by HEPURA4 weeks before the tender submission deadline at the latest. It appears that compensation will be granted only up to 120 months after obtaining appropriate aFRR accreditation for the facility, with a cap to recover capital investments in the amount of a minimum EUR 16/kW and a maximum EUR 160/kW per year.

The first tender for battery energy storage systems was published on 13 November 2023, according to which developers were entitled to submit their application between 15 January 2024 and 5 February 2024. Due to recent changes to the TSO's operational code, the transition of granted grid connections from photovoltaic power production to battery energy storage projects will be allowed. This new support scheme is expected to provide the necessary boost to electricity storage in Hungary.

6.2 Necessary Grid Developments in Hungary

Optimising energy systems is becoming increasingly urgent both across Europe and in Hungary. This need arises not only from outdated electricity grids and growing energy demand, but also from the installation and integration of an increasing number of solar power capacities, presenting significant challenges in this regard. The European Commission predicts a 60% increase in EU energy demand by 2030, alongside growth in industries, household heating, the number of vehicles, and demand for hydrogen. Therefore, Hungary and the European Union emphasise the critical importance of developing the electricity grids.

At the beginning of 2024, Hungary had updated its Network Development Plan, which details the elements to be built or renovated in the transmission network over the next fifteen years, as well as already approved developments. It also outlines investments to be realised in the distribution network over the next ten years. The Network Development Plan also includes strengthening the national electricity grid's international connections with Slovakia, Serbia, and Romania by 2030. Due to increased demand from large consumers and renewable energy power plants, significant investments are required by network operators to maintain the network's ability to meet demands and ensure supply security.

6.3 Hydrogen

In line with European trends, hydrogen is gaining increased attention in Hungary. Hydrogen may become a widespread green energy source in the next decade. Accordingly, the Hungarian Government adopted the National Hydrogen Strategy in 2021. The main objectives are the production of large volumes of low-carbon and decentralised carbon-free hydrogen, decarbonisation of industrial consumption (using hydrogen), developing hydrogen-based green transport, and developing green balancing energy infrastructure.

Hungary's target is to produce 36,000 tonnes/year green or other carbon-free and low carbon hydrogen (20,000 tonnes/year low-carbon hydrogen and 16,000 tonnes/year carbon-free hydrogen by 2030). The Hungarian Government intends to have 240 MW of electrolyser capacity in the next decade.

Regarding industrial decarbonisation, low-carbon hydrogen may be introduced to the petrochemical and chemical industries (i.e. ammonia production). This is focused on technical processes where decarbonisation is urgent due to the climate strategy compliance.

The Hungarian Government intends to make traffic more environmentally friendly by way of increasing hydrogen usage. This may result in a corresponding reduction of gas and oil use, particularly in heavy-duty vehicle traffic (i.e., road transport and public transport). In 2021, the first hydrogen filling station was established in Hungary, however it is not a publicly used filling station.

Hydrogen may play a key role in electricity system balancing as green hydrogen-fired power plants may replace the currently operating gas-fired power plants. Hungary will need a stable and reliable balancing system due to the increasing volume of weather-dependent renewables.

After 2030, a further increase in the use of hydrogen is expected. The Hungarian legislator is dedicated to creating a suitable regulatory environment for hydrogen-related investments. Over the next few decades, hydrogen will play an increasing role in the industrial decarbonisation, transport and cooling-heating sectors in Hungary.

Law at first sight.

Hungary

Authors:

Laszlo Kenyeres
Partner
E laszlo.kenyeres@wolftheiss.com
T +36 1 4848 800

Adam Lukonits
Senior Associate
E adam.lukonits@wolftheiss.com
T +36 1 4848 800

Tamás Pál
Associate
E tamas.pal@wolftheiss.com
T +36 1 4848859

Virág Lőcsei
Associate
E virag.locsei@wolftheiss.com
T +36 1 4848865

Wolf Theiss Kálvin tér 12-13, 1085 Budapest
T +36 1 4848 800 **E** budapest@wolftheiss.com