



Expert opinion on the ENERGY - GREEN TRANSITION component of Hungarian Recovery and Resilience Plan

The lack of diversity in renewable energy utilization and insufficient measures to reduce energy consumption may be the biggest barriers in Hungary's green energy transition in the future. The Hungarian Recovery and Resilience Plan does not seem to solve these problems.

Green transition ensures a climate friendly and sustainable future, makes clean energy sources available to all citizens and provides energy security. It requires an appropriate allocation of sources available for *recovery and resilience* in parallel with the sustainable restructuring of the energy system improving its diversification.

The strategic background of the *Energy - Green transition component* of Hungary's Recovery and Resilience Plan is the new National Energy Strategy 2030, with a view to 2040, and the National Energy and Climate Plan. The source documents referred reflect decades of professional and attitudinal backwardness, as well as ideas that run counter to fundamental national strategic interests. Energiaklub published a NECP evaluation study¹ in 2020, that explains the main problems and suggests solutions in detail.

The *Energy - Green transition component* of Hungary's recovery and resilience plan includes the decarbonisation of the energy sector and the conversion of electricity generation to carbon-neutral. The plan also places great emphasis on promoting residential renewable energy investments and investments to increase the necessary network capacity. Decarbonising the electricity sector and increasing the use of renewable energy are important strategic goals, but they are not enough to achieve climate goals: the end-use sectors, especially buildings, which are responsible for almost 50% of energy consumption and CO₂ emissions, should be given much greater emphasis in the plan.

Modernization of the energy system should focus primarily on reducing energy consumption. There is nothing "cleaner" than unspent energy. Energy saving and energy efficiency measures should be priority in all cases. This can reduce both the costs of developing the service network and the costs of necessary renewable energy developments. There is a need to increase the volume of communication campaigns and financial incentives that stimulate energy saving.

Lack of reforms for energy renovation of buildings

Without comprehensive renovation of buildings, a sustainable future and climate goals cannot be achieved, but Hungary's Recovery and Resilience Plan lacks such detailed reforms and measures. Building renovations have significant economic, job-creating, emission-reducing and welfare-enhancing effects. Based on the study of the Hungarian Energy Efficiency Institute (MEHI)², through large-scale renovation of the building stock, the Hungarian economy can expect benefits that outweigh the costs of the investments. Energy refurbishment of buildings is one of the main areas

¹ <https://energiaklub.hu/files/study/Energiaklub%20NEKT%20v%C3%A9lem%C3%A9ny.pdf>

² https://mehi.hu/sites/default/files/mehi_hazai_felujitasi_hullam_tanulmany_2021.pdf



that the Commission highlights and strongly recommends to include in the national recovery plans of Member States³.

Suggestions for energy-efficient building renovations, that should be included in the recovery and resilience plan:

- setting up and operating one-stop consulting office system, which provides professional assistance for renovations of the appropriate quality
- training and capacity building of professionals in the building industry to lay the foundations for the renovation wave (topics: deep renovation, staggered deep renovation, conditions for near-zero energy buildings, technologies)
- formulating technological proposals and expectations for the renovation of building types with significant total energy consumption, then supporting deep renovations in the residential sector
- creating and maintaining a regulatory and institutional environment that supports the involvement of private capital.

The energy efficiency principle of the European Green Deal also states that the potential of energy efficiency must be considered before any large-scale investment decision in the energy sector. There is no trace of systematic enforcement of this in the plans.

The plan does not take sufficient account of the reduction of energy consumption in the end-use sector, in particular in the building stock, either in the objectives of the strategy or in the measures proposed, despite the wasteful use of energy in Hungarian building stock, especially for heating.

The modernisation of heating systems without energy efficiency of buildings is wasteful

Numerous studies show that without energy efficiency, decarbonisation of thermal energy production can incur huge costs. A combination of low-carbon heating technologies and energy efficiency improvements is needed to decarbonise heat.

According to the Hungarian Recovery and Resilience Plan, the electrification of residential heating systems is to be supported in the future. But encouraging the installation of solar PV systems and the electrification of heating and DHW systems with non-refundable subsidies to reduce energy costs only makes sense, if it has been preceded by a reduction in the heat demand of the building or dwelling through insulation, replacement of doors and windows, reduction of cooling energy demand in summer by shielding. Only the remaining (limited) energy demand should be met by renewable energy technologies (e.g. solar PV, heat pump).

Not all of the electric heating systems proposed in the plan are cost-effective. The applicability of electric heating (infrared panel, electric radiator) for building heating is very limited, support of these installations is not acceptable. However, the implementation of significantly more efficient heat pump applications and, in parallel, solar systems deserves support.

Under Hungarian climatic conditions, heat pump systems with constant availability throughout the year can provide a much more secure and efficient supply in buildings than only solar-based electric

³ <https://www.renovate-europe.eu/wp-content/uploads/2018/09/Checklist-What-Buildings-Elements-in-the-National-Recovery-Plans..pdf>



heating systems, which would require significant balancing capacity during the heating period. Increased budget allocations to support heat pump heating systems are essential to promote residential renewable energy investments.

The aim of the Recovery Plan is to increase the installed capacity of residential heat pumps up to almost 400 MW by 2030. This target is very low. The total capacity of heat pumps in Hungary should be well over 1000 MW in 2030, based on their growth rate in recent years.

The first call for proposals for the Recovery Plan is not well thought out

Despite the fact, that the Hungarian Recovery and Resilience Plan has not been approved by the EC, the Government decided to launch the first call financed by RRF in November. The call named 'Support for residential solar PV systems and electrification of heating systems in combination with PV panels' aims to fully (100%) support Hungarian households living under the national average salary levels to get PV panels and/or change heating systems, however this limit is quite high and the process is so complicated that probably not the poorest strata will have access to support.

In addition, the originally appointed goal by the Recovery and Resilience Plan (to improve air quality in the most problematic regions and to reduce energy poverty) does not seem to be responded adequately by the call. The electrification of heating systems without proper insulation of the houses is totally ineffective and uneconomic but the call doesn't include such measures (only the change of windows and doors). Those living in the worst conditions, heating often even with rubbish cannot afford to complement the support with such improvements from own resources.

The draft of the call is now open for public debate for 2 weeks which is not enough to deeply discuss the possibilities and find the best way to reach the originally set goals of the Plan.

Increasing capacity of renewable sources - low targets for 2030

There are greatly underestimated targets regarding the planned capacity expansion of renewable energy sources for the next 10-20 years in the National Clean Development Strategy referred to in the Recovery and Resilience Plan.

The aim of the Recovery and Resilience Plan is to make the Hungarian electricity network more flexible and secure, but flexibility can only be partially achieved by thinking within the electricity system. In line with the opportunities of the 21st century, it would be necessary to look for opportunities and synergies in the energy system as a whole (i.e. heat pumps, heat storage, electric cars), to open up new opportunities.

Diversification is essential for flexibility

The fact, that in the field of green energy, the planned capacity expansions are almost exclusively about solar PV systems, is opposite to the main goal of the Recovery and Resilience Plan since the condition for resilience is diversity.



In addition to photovoltaic systems, it is also essential to develop other renewable energy systems, based on assessments of different local conditions (natural, social, economic, technical, etc.), always keeping in mind the principles of sustainability and cost-effectiveness. Based on impact studies, if in a certain location wind power plants or biogas plants provide a more cost-effective alternative to solar power plants, they should be supported. Multiple renewables can partially balance each other's power generation, making it easier to balance overproduction and underproduction of weather-dependent renewable capacities under favorable or unfavorable conditions.

In Hungary, under the current regulation, the construction of wind power plants (over 50 kW) is prohibited, which is a huge shortcoming, so the recovery plan does not envisage such investments. The argument against wind energy (e.g. low wind speed, expensive power generation) reveals serious professional shortcomings. According to the Global Wind Atlas⁴ published in 2019, the wind speed data in Hungary is 7.8 m/s at an altitude of 150 m and 8.5 m/s at 200 m, similar to neighboring countries (bit lower than in Austria and higher than in Romania). In both countries ten times the Hungarian wind power capacity generates electricity in an environmentally friendly way.

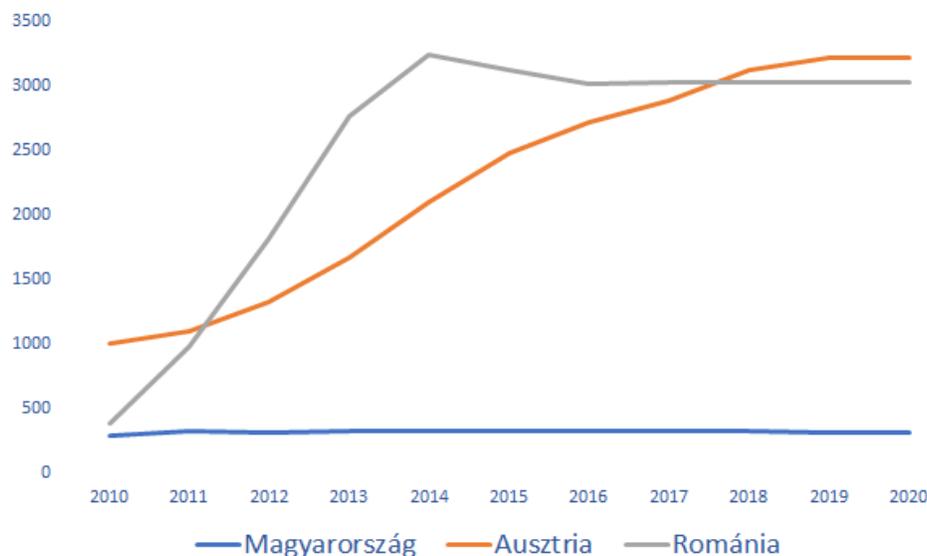


Figure 1: Development of wind power capacities (MW) in Hungary (blue), Austria (orange) and Romania (grey) between 2010-2020 (IRENA 2021)

It is a serious mistake to legally prevent private investors from investing their money in wind energy, which is one of the most environmentally friendly solutions for humanity, including the impact on climate change.

⁴ <https://globalwindatlas.info/>



In comparing the potential of solar and wind energy in Hungary, the document draws erroneous conclusions. The comparison of annual sunny and windy hours is misleading in itself; the document does not take into account investment and operating costs, efficiencies, and the utilization rates (capacity factors) of power plants. The ~ 7.8 TWh of electricity that can be generated by the 6500 MW PV solar power capacity planned by 2030 could be covered by ~ 4,000 MW of wind power capacity. Hungary's natural endowments are suitable for economical operation of wind power plants⁵.

The Recovery and Resilience Plan mentions the 'balanced regional renewable energy portfolio', but such renewable energy portfolio that plans with the huge predominance of solar technology (~6500 MW capacity), while all other technical solutions represented significantly lower capacities (~1100 MW in total) cannot be called balanced. Detailed information can be found in Energiaklub's latest assessment study on wind energy which based on the latest domestic and international research and own analyzes⁶.

Developments are needed to increase the flexibility of the electricity system and to facilitate the integration of weather-dependent renewable capacities

The Recovery and Resilience Plan mentions the importance of energy storage and smart metering which are absolutely essential units for higher flexibility and more efficient operation of the electricity system. Energy storage units should be adapted to the size and location of smaller renewable energy plants.

⁵ Szélenergia a 21. században - és Magyarországon.

https://energiaklub.hu/files/study/Energiaklub_Sz%C3%A9lenergia%20a%2021.%20sz%C3%A1zadban_2.pdf

⁶https://energiaklub.hu/files/study/Energiaklub_Sz%C3%A9lenergia%20a%2021.%20sz%C3%A1zadban_2.pdf