

KKI

4:1



Green Energy in Focus –
Investment Incentives
in Poland and Hungary

KKI 4:1

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In the 4:1 series of the Institute for Foreign Affairs and Trade, four experts give a short answer to the same question concerning international politics and economics. Our aim is to launch scientific debates in and beyond Hungary and promote dialogue among experts. In this issue our topic is “Green energy in focus – Investment incentives in Poland and Hungary”.

Sustainable economic growth and environmentally friendly development have become a priority at the European level. European Member States adopted the European Green Deal at the end of 2020, which aims to transform the EU economy into a modern, energy-efficient, and competitive economy. What does all this mean for Poland and Hungary? What transformation is starting in the regions, how are products and services transformed, what technologies are worth investing in? What are the opportunities, problems, and risks in green investments? What role does renewable energy play in the transformation? How are European-level goals reflected at the company level? How does a multinational company operating in the region think, and how does a large Hungarian company interested in regional markets react to the processes? What opportunities are there for small and medium-sized enterprises? How does all this transform Hungarian and Polish economic policy planning? These are the questions we are searching the answers for in these studies written by international authors.

The studies have been prepared in the framework of a project supported by the Waclaw Felczak Foundation.

MARKUS BECKER

Accelerated Growth of Renewables and Gas Power Can Rapidly Change the Trajectory on Climate Change

Extract from GE’s Future of Energy [white paper](#).

Addressing climate change must be an urgent global priority, requiring global action, national commitments, and consistent policy and regulatory frameworks.

Too often, the dialog around climate change can be mired in defining and debating an ideal future state and the timeline by which society would achieve that end-state. In the meantime, insufficient global progress is being made with each passing day. Paraphrasing an old adage, “Perfection is the enemy of progress.”

Decarbonization of the power sector and the electrification of energy-use sectors (e.g. transportation, industry, and heat) as quickly as possible will have the most substantial impact on global carbon emissions. Based on our



extensive analysis and unique experience across the breadth of the global power industry, *GE believes that accelerated and strategic deployment of renewables and gas power can change the trajectory for climate change, enabling substantive reductions in emissions quickly, while in parallel continuing to advance the technologies for low or near zero-carbon power generation.*

GE also believes that decarbonization actions will be determined locally, based on resource availability, policy, current infrastructure, and demand for power. There are many regions in which gas power can be a key enabler to further renewables penetration, specifically in regions with high current gas capacity and/or substantial dependence on coal. In those regions, gas power can serve as a backbone for greater renewables penetration and accelerate the retirement of coal assets, both of which will have significant positive impact on overall emissions.

Renewables are the fastest-growing source of new power generation capacity and electricity. This dramatic growth has been propelled by a combination of factors, including public awareness about climate change, steep cost declines, advances in wind and solar technologies, and favourable policies that incentivize investment in renewable technologies. Yet despite the progress, today wind and solar together account for just eight percent of global electricity generation, and with all renewables considered (predominantly hydropower) it grows to nearly 27 percent.¹

To put the challenge of relying solely on increased deployment of wind and solar PV to combat climate change into perspective, in the International Energy Agency's (IEA) Stated Policies Scenario, their reference scenario, wind and solar account for nearly 75 percent of global net capacity additions between now and 2040. This results in more than a 3X increase in wind, and 6X increase in solar installed capacity. Despite the rapid growth and significant investment in wind and solar PV postulated in this scenario, their combined generation contribution only increases to 28 percent of the global total in 2040, and they are roughly on par with coal at 22 percent and gas power at 21 percent.²

New sources of abundant and affordable natural gas have driven the economic shift of coal-to-gas switching in several regions. With less than half the CO₂ of coal generation, natural gas is contributing significantly to decarbonization in these regions. Yet globally coal still accounts for nearly 40 percent of electricity generated, and it is expected to remain the largest single source of electricity generation for decades to come, unless significant changes in the power sector fuel mix occur.

Viewed separately, renewables and gas generation technologies each have merits and challenges, as the means to address climate change and optimum solutions will differ regionally. Such solutions will depend upon factors such

1 International Energy Agency World Energy Outlook 2020 2International Energy Agency World Energy Outlook 2020

2 International Energy Agency World Energy Outlook 2020 2International Energy Agency World Energy Outlook 2020

as fuel availability and security, land use constraints, renewable resource availability, and the emphasis a particular region places on climate change. Together, their complementary nature offers tremendous potential for addressing climate change with the speed and scale the world requires. Key attributes of these technologies are summarized on the following page.

Technologies other than wind, solar, battery storage, and gas will also contribute to the longer-term power mix, but the focus of this whitepaper is to elevate the emphasis on renewables and gas power as an urgently needed solution to change the near-term trajectory on climate change.

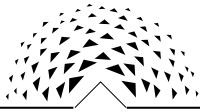
The power industry has a responsibility, and the technical capability to take significant steps to quickly reduce greenhouse gas emissions and help address climate change at scale. *The solution for the power sector is not an either/or proposition between renewables and natural gas but rather a multi-pronged approach to decarbonization with renewables and natural gas power at its core.* GE as a company is uniquely positioned to play a role through its scale, breadth, and technological depth.

We have been a key player in the power industry since its inception and have a suite of complementary renewable, gas-fired, nuclear, grid, and digital technologies needed for the transformation to a decarbonized energy future. This industry experience, coupled with technological knowhow, enables GE to help policy makers make effective decisions that deliver the desired decarbonization results while avoiding unintended consequences.

MÁRTON BUDA

The threatening effects of global warming, along with advancing technology, have significantly changed European and national energy policies in the past decade. The energy sector is associated with at least two-thirds of greenhouse gas emissions through the energy use in industry, residential and commercial buildings, and transportation. Regulatory efforts to implement climate targets are shaping the energy industry in numerous ways: by promoting innovative investments in the infrastructure, introducing artificial markets for carbon quotas and guarantees of origin, and applying negative incentives on emission import or through indirect means, by way of financial industry measures.

In recent years, the MVM Group has achieved a dominant position along the Hungarian gas and electricity value chain, and today it is among the largest CEE companies. Its corporate strategy for 2025 has a comprehensive approach to green transition, which covers all business fields from production to end-customers, in line with national and European-level energy policy objectives.



Although energy generation is over 80% carbon neutral in the portfolio, the growth of carbon-free ratio is key in our decarbonization roadmap. The MVM Group aims to considerably increase renewable generation with a dominance in photovoltaic technology, as well as keeping its existing nuclear capacities. To support the transition of units with a high carbon footprint, the MVM Group has recently accepted the coal-phase out plan for its Mátra Power Plant, which still has a significant share in Hungarian power generation. Nevertheless, to provide energy security while shifting towards clean energy, the flexibility of generation must be sustained. MVM will thus implement various energy storage projects and - as a milestone towards carbon neutrality - highly efficient CCGT units. State-of-the-art gas generation represents a cost-efficient tool in this shift, which significantly decreases carbon emissions. On the customer side, utilities gain opportunities with the growing need for home smart tools, electric cars, complex energy efficiency solutions (e.g. heat insulations, PVs), or smart street-lighting and energy communities. In recent years, the MVM Group has developed its competencies to be able to provide end-to-end and integrated solutions for its customers. These trends and competencies have allowed us to accelerate the decarbonization of transportation through entering e-mobility, or to respond to the national regulations regarding energy efficiency targets. Nevertheless, infrastructure investments are key to facilitating changes on this decarbonization roadmap. A substantial part of our infrastructure investments target the integration of utility and home-scale renewables, and the enhancement of grid flexibility and energy efficiency (e.g. network loss reduction, DSM solutions, or enhanced TSO-DSO cooperation).

Innovation is vital in both existing operations and beyond to reach sustainable climate targets. Beside enhancing our competitiveness through more efficient operations or customer-oriented solutions, it also promises new business opportunities regarding decarbonization. In recent years, the MVM Group has scaled up its innovation ecosystem in many dimensions: in investments and the incubation of start-ups, corporate and academic partnerships, or fostering new solutions in operations. The annual MVM Edison start-up competition is a source of green ideas, such as a recent investment that makes electric vehicle usage more efficient through smart charging and route planning. An R&D co-operation (FIEK) with three multinational companies and the Budapest University of Technology will soon deliver a tool that provides precise production forecasting in renewable generation for customers. The transition, however, brings novel and large-scale opportunities as well: hydrogen technology - which is currently in an R&D phase - has the promise to be part of a carbon-free economy. Hydrogen produced from clean energy could decrease various industry emissions, store energy, or be used as an alternative carbon-neutral fuel for transportation. Among many project ideas, the MVM Group has recently started its first R&D project called "Akvamarin" to test and identify the opportunities of hydrogen production, usage, and transportation in the existing gas infrastructure.

The ambitions to reach climate targets, however, require significant financing. Although funds and incentives exist at a national and European level, the classification of sustainable activities and the allocation of funds are key in supporting the diverse transition roadmap of incumbent energy companies efficiently. The dominant role of nuclear energy in long-term power generation, the temporary shift from coal to gas, or the classification of green hydrogen and the use of blue hydrogen represent directions that may significantly contribute to achieving the European climate targets.

TOMASZ ZJAWIONY

The consequences of the changes in energy policy in the EU and in the Polish energy system for the Polish SME sector in terms of the European Green Deal, reducing greenhouse gas emissions, energy obtained largely from renewable sources, as well as increasing energy efficiency - these are the overarching goals of the EU's climate and energy policy until 2050.

The EU's policy of achieving climate neutrality in the next 30 years by creating a just transition mechanism aims to level the playing field and mitigate the negative effects of change in the regions that are most exposed to it.

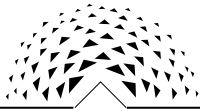
The transition to a climate neutral economy is a challenge and an opportunity for countries such as Poland, which are deeply rooted in the coal economy. The changes are associated with inevitable socio-economic consequences, which is why it is so important to implement an efficient mechanism, a key EU tool supporting countries in a just transition.

The objectives of the European Green Deal, through which it will be possible to achieve a just transition, include: climate neutrality, which determines other factors, such as zero emissions, a modern, resource-efficient, competitive economy, the protection of the EU's natural capital, the protection of citizens against climate change, and preventing social exclusion as a result of macroeconomic changes and job losses.

The European Commission has provided rapid support to the eighteen Member States that submitted proposals under the Structural Reform Support Program to help prepare territorial just transition plans. These countries include Belgium, Bulgaria, Cyprus, the Czech Republic, Greece, Spain, Finland, Croatia, Hungary, Ireland, Italy, Lithuania, Latvia, Poland, Portugal, Romania, Slovakia, and Sweden.

The planned changes are a huge challenge for Europe and Poland, the largest beneficiary of the Just Transition Fund.

The preparation of a comprehensive transformation plan for the Polish mining industry and mining-related industries, including coal-fired energy, is a starting point for the implementation of an appropriate strategy, including an offer for the residents of Silesia, Zagłębie, Bełchatów, and other mining regions. The plan should take into account the directions of industry



transformation, with the provision of jobs in new branches of the economy, including, for example, the emerging sector of component production for renewable sources, batteries for electric vehicles, or energy storage. Support mechanisms for employees of liquidated industries and their families is also an important aspect of the changes, to ensure opportunities for acquiring new competences, changing industries, or implementing protection programs.

The activities contributing to the implementation of the above-mentioned plans can successfully blend with production investments in SMEs, start-ups, research and innovation, technology implementation, infrastructure providing clean energy, strengthening the circular economy, and improving and changing the qualifications of employees.

Creating new companies and specializations that will replace those previously focused on coal is an opportunity for small and medium-sized enterprises, including those related to mining, for a transformation that will not be as severe for them, and it may open up new development opportunities that generate jobs.

The potential for change of industry or other, more environmentally friendly, business directions by SMEs is visible in many sectors, such as the automotive, public transport, energy-efficient construction, chemical and machinery industries, or the circular economy. The eco-awareness of SMEs is constantly growing, and thanks to EU funds there is a good chance that in the coming years there will be more and more convenient tools, mainly in the green energy and green transport sectors.

Support in the form of EU funds is particularly desirable, playing a key role in taking action to serve society and entrepreneurs in the least invasive transition to the new ecological reality, and, consequently, contributing to the effective implementation of climate policy assumptions; therefore, building awareness and identifying needs in this regard is currently of paramount importance.

In order to increase the effective use of funds, it is necessary to carefully analyse the situation of enterprises from regional, environmental, and social aspects, including them in the dialogue, and mobilizing and providing the full range of information necessary to implement the activities that will be launched by the above-mentioned support.

MÁRTON UGRÓSDY

Hungary looks forward to moving in the direction of using more renewable energy sources in its energy mix, but the circumstances limit the possible options of the government to meet EU climate targets and keep the competitiveness of the economy at the same time. Residential energy prices became a politicized question in 2013, while low energy prices are needed to fuel industrial growth, especially after the pandemic-induced economic crisis in the European Union.

The Hungarian approach to modernizing the energy sector rests on three pillars: first, the most important base power plant, the Paks NPP has to be refurbished, as the original VVER-440 reactors are nearing the end of their service life. To replace this capacity, an international consortium led by Rosatom was contracted to install two new, VVER-1200 type reactors to provide the necessary electricity. The second pillar is the replacement of lignite with natural gas in the traditional thermal power stations, while the third is focusing on renewables, especially by expanding photovoltaic capacities.

Traditionally, Hungary has had a higher share of renewables especially in residential heating, although mostly due to the widespread use of biomass (firewood) in the least developed parts of the country, which has led to declining air quality. In heating, the share of renewables was 20.7 percent in 2016, while it accounted for 7.2 percent of electricity production in the same year. 2019 marked a significant change in the electricity generation segment: the government decided to subsidize the development of solar power plants, and accordingly, the built-in capacity of these power plants increased to over 2000 MW by the end of 2020. This means that Hungary's solar capacities – at least on paper – are comparable to the Paks NPP, which usually accounts for 40 percent of the total Hungarian electricity production.

In February 2020, Prime Minister Viktor Orbán presented the Climate Protection Plan of Hungary, which, among other objectives, calls for a sixfold increase in the capacity of solar power plants by 2030, subsidizes the purchase of hybrid and electric vehicles, and supports the renewable energy production of small and medium enterprises. According to the plans of the government, this will contribute to a cleaner Hungary as well as the fulfilment of the EU's requirements on the way to climate neutrality.

Hungary and Poland are competitors when it comes to foreign direct investment and certain economic fields, but in the transition process to greener energy production there are ample opportunities to cooperate. First, the electrification of public transport in Hungary (PM Orbán announced that only electric buses can enter into service in the country after 2022) might open up new business opportunities for Solaris, which has won a contract to deliver Solaris Trollinos to the city of Budapest, as well as numerous e-buses to other towns such as Paks and Békéscsaba. Another area for possible cooperation might be sharing the know-how of phasing out coal-fired thermal power stations and refurbishing them for alternative fuels, including natural gas.

To reduce greenhouse gas emissions, energy efficiency has to be improved as well. Many flats and apartment complexes in Hungary date back to the communist era, with mass-produced blocks of flats, but semi-detached houses also suffer from energy loss. To reduce energy loss and stimulate the construction market, the Hungarian government has initiated various programs to insulate these buildings, replace old doors and windows, etc. Polish companies like Fakro could utilize these opportunities to supply affordable, high-tech, and energy efficient construction materials to the Hungarian market.