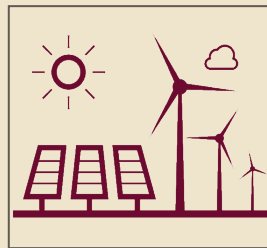


Republic of Bulgaria
Ministry of Foreign Affairs



**DIPLOMATIC
INSTITUTE**

Energy and Climate Diplomacy





REPUBLIC OF BULGARIA
Ministry of Foreign Affairs
Diplomatic Institute

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2023-2024 – ENERGY AND CLIMATE CHANGES ALONG DOMINATION OF GEOPOLITICAL DISTURBANCES

Slavtcho Neykov, Editor

Member of the National Consultative Council
of the Bulgarian Diplomatic Institute

DISTINGUISHED READERS,

It is my greatest honor to welcome you to the 2024 edition of the ENERGY AND CLIMATE DIPLOMACY JOURNAL, issued by the Bulgarian Diplomatic Institute to the Minister of Foreign Affairs!

As usually, you will have the chance to note variety of opinions on a set of topics within a common frame – and in 2024 this frame has been announced as “Energy Transition amid Geopolitical Disruption - Promoting Regional Stability through Decarbonization”.

Please, allow me to present the edition in brief along few points.

“The Game is on”!

This subtitle in one of the articles, which is part of the edition, in a way summarizes the set up and the developments, which are subject of the presented analyses. However, the game is not always something, which is pleasant to observe; but I believe we are all waiting for the better.

Certainly, it is easy to look around and spot the availability of geopolitical aspects of different nature, which directly or indirectly influence the energy and climate related developments at national, regional, European and international level. Thus, unfortunately, in 2024 we all are still concerned by wars, by military conflicts, by different types of explosions of political tensions. In parallel, a set of regular and extraordinary elections throughout Europe and the world are taking place incl. inter alia those for the European Parliament.

On this ground, the articles recall crises on the energy markets and the measures to overcome them, as well as the development of decarbonization policies at all levels, presenting them inter alia against geopolitical turmoil. Scope wise, I believe that any reader could find in the texts topics of personal interest – they focus on geopolitical analyses, cross-border energy connectivity, energy transition technologies, RES projects, including the increasing global competition over control of critical resources etc.

And the changing concept of “Regionality”!

When one comes to regionality as mentioned in the focus of the journal this year, it should be considered in a broader sense. In practical terms, the regionality concerns not only specific geographical territories (in our case South East Europe, Middle East, North Africa, Asia) and concrete countries (Azerbaijan, Bulgaria, Israel, Morocco, Russia..), which are discussed in the articles. It is also about geopolitical and economically outlined regions, with concrete partnerships, linked to energy, influencing also climate changes. Excellent example in this relation is the focus on the energy security in the Western Balkans via the US – EU “Energy Bridge” to support the electricity market integration in this region etc. In this aspect, the readers will find facts concerning bilateral and multilateral relations not only between countries, but also between companies, some of which operate worldwide.

Along this frame, it should be clearly underlined that the results of the completed elections and the political trends about those, which are still to come, already indicate substantial changes. And these changes inevitably affect the energy and climate dimensions, influencing concepts, long term partnerships and/or investment related steps. Acting adequately within such a frame inevitably presupposes a just and honest approach to the situation.

Realism above all along the Carrot and the Stick

On the ground of the factual basis as recalled above, the authors provide abundant facts and views, concerning the energy and climate related changes the way they see them along the geopolitical up-to-date situation. The related facts have been presented from different angles – some of them focus dominantly on concrete countries, while also recalling their role for the neighbors. Others provide data, picturing global energy security trends. Further, details on specific subsectors e.g. oil and gas are outlined. And – just to illustrate the variety of views - I will borrow another statement in this context, referring to the Green Deal and the changes it brings. The reference is to “The Green Stick, the Green Carrot and ... the Debate on Protectionism”.

As already mentioned, the authors reflect their personal views – but realism seems to be the common denominator in all articles. And I think we – as readers – should strongly welcome this. The reason is that – when it comes to energy and climate – there is hardly a place either for pessimism or for overwhelming optimism. The energy world continues its immense – and sometimes hardly predictable – evolution, which in some aspects is even revolutionary! In fact, this situation often provokes conflicts between speedily moving industrial developments and the slower or completely inadequate political reactions. The observations of a status quo, when there are delays in developing the necessary legislative or regulatory frame, are no exceptions.

And – as other authors state – the navigation concerning the green transition and the energy and climate changes in reality is also linked to legal storms!

Ineffective usage of funds upon wrong political and policy decisions are also to be seen – and sometimes these conceptually and operationally wrong steps are not only at national level but jump beyond national borders and affect common supranational political decisions. Without any doubt and regardless of the geographical frame, the reasons for such improper decisions are linked to inefficient assessment of facts. And this means there is objective need for their reassessment – the authors have given us numerous examples in this direction.

Few words on Bulgaria and the regional and EU Dimensions

Although the edition is of the Bulgarian Diplomatic Institute, there is only one article, directly linked to the Bulgarian energy sector and the climate related aspects. Certainly, the look at the topic provides substantial amount of national data, but it is discussed on the ground of the EU and the European trends with a substantial regional focus. And this approach is more than logical – regardless whether the Bulgarian neighbors are members or non-members of the EU, when it comes to the implementation of the energy and climate related policies, all countries share the same goals. In legal terms, the key EU legislation in these spheres is mandatory for the whole region of South East Europe including via the Energy Community process. This is why when e.g. the balance between energy security and geopolitical autonomy is being analyzed about the country, the conclusions are put not only in national but also in European perspective. This is also valid for other important points - such as e.g. increased investments in renewable energy as part of the European Green Deal.

To wrap up – on the Conflictogenicity of the Energy Transition

Certainly, debating currently on the energy and climate changes is not easy – these debates go on along complicated geopolitical environment, which we see now, but which the world has not seen for decades. Besides, the green transition, which objectively dominates the changes in question, definitely indicates quite a conflictual nature, which has been also correctly pointed out in the texts. In fact, one of them very convincingly and in details refers to the “Conflictogenicity of the Energy Transition”. The latter concerns not only general views, but also politics, policy, legislation, institutions, business cooperation formats etc.

Therefore, this situation presupposes not only political, policy, legislative and regulatory clarity, but also very active social intervention by all legitimate set of means. The problem with the objective analysis and resolution-oriented

steps in the frame of the Green Transition lies mostly within the geopolitical frame - i.e. with those, who are entitled to take decisions. However, the latter not always have sufficient knowledge as to take adequate steps – and the green transition process presents non-stop examples in this relation. Thus, coming back to the edition and its content, I appreciate very much the authors' will and approach to be as objective as they can by presenting a realistic picture concerning the facts and their interpretation. And I am sure that the decision makers will have a chance to learn a lot.

Once again, I thank all the readers for the interest - I believe we can all benefit by the shared knowledge of the authors! And I am grateful to all of them - regardless whether one shares fully the expressed views.

I would like to also note my gratitude to the Bulgarian Diplomatic Institute – the permanent focus on the energy and climate diplomacy in its work is without any doubt a benefit well beyond the national borders and geographical boundaries.

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THE GREEN STICK, THE GREEN CARROT, AND THE SILENT ELEPHANT IN THE ROOM – THE RESURRECTING DEBATE ON PROTECTIONISM

Radan Kanev, Member of the European Parliament, EPP Group

Introducing the topic

The discussion surrounding the European Green Deal has become increasingly anxiety-inducing, and its narrative grows more critique by the minute. Has this policy initiative gone too far? Should one weaken it or even abolish it right away? Nonetheless, the initial and most pressing question remains: what exactly is the Green Deal? Is it a legislative package, a growth strategy, an investment plan, or – as protesting farmers would claim – a series of bureaucratic measures that hinder economic activities? Or all of the above? To have a meaningful debate on the future of the Green Deal and, more importantly, its feasibility in achieving 2030 and 2050 climate targets, these answers would be crucial.

The truth is that the Green Deal has taken on many forms over the last five years. It began as a one-trillion investment package aimed at closing the investment gap between the EU and its global competitors in developing new technologies. However, it has become a burdensome legislative package with minimal financial incentives, implemented mainly through already preexisting funds. The 2019' Green Carrot has now become the 2023' Green Stick, at least in the eyes of industrial and agricultural entrepreneurs who see it as a hindrance to their investments. It is crucial to examine these two opposing sides of the Green Deal in more detail.

Let's start with the Carrot. Back in 2019, it was apparent that the EU (and Europe as a whole) is losing the race for global leadership in new technologies, in almost all aspects of this race. And losing to competitors who don't have, to put it mildly, such strong internal consensus on the need for climate action and green transition as Europe has:

- Obviously, the EU was falling behind China and the US, and indeed Korea, in the development and manufacturing of electric cars, for example. Despite having stricter CO2 performance regulations for vehicles than any other developed industrial market, Europe was lagging in the entire electric mobility value chain, from mineral extraction to battery production, electronics, and equipment.
- The same was true for renewable energy, particularly the solar technology value chain.

And these are just a few examples. Maybe the most traumatic aspect of lagging in virtually all elements of the modern industry behind European direct competitors was the fact that most of the inventions, innovations, and respective patents for so-called GreenTech and Cleantech still originate in Europe. The stunning success of the US and China in the market deployment and mass production of new technologies was based on European intellectual property. Our inventions, often sponsored with taxpayers' money via EU programs such as Horizon Europe or lavish national innovation budgets in wealthier Member States in Northern Europe, were industrially developed, in most cases, in the US, and produced on a global scale in China.

Given these worrying circumstances, it is no wonder that the Von der Leyen Commission proposed the Green Deal trillion investment package, and even the notoriously conservative, when it comes to Brussels budget, "frugal" governments in the North agreed to the concept of borrowing the amount (meanwhile reduced to 750 billions) on the financial markets. But after the outburst of the COVID-19 pandemic and its devastating march through our production value chains, labor markets, and social systems, the Green Deal money (not yet finally agreed at the political level, let alone effectively borrowed before the Covid outbreak) became the "Recovery and Resilience Facility". And much worse for our industry – all the money was given to the EU national governments, ready to fill budget gaps opened by excessive yet unavoidable social spending during the lockdown phase of the pandemic. Years later, looking into the first more comprehensive accounts on the implementation of the national RRF plans, it is obviously much more Recovery than Resilience. A rather conservative assessment will be to claim that less than 300 out of the RRF 750 billion were dedicated to various climate objectives, and even less were effectively spent accordingly. And only a fraction of these funds was ever dedicated to industrial modernization...

Few points on the Stick

Recent analyses show that, despite some rather chaotic national spending and often prodigal approach, the National RRF plans worked quite effectively and contributed substantially to the recovery of national economies. It would be unfair to state that RRF was a failure of any kind. But there's always the "but". Neither the objectives of the RRF nor the results achieved were aligned with the EU Green Deal commitment to surpassing Europe's global competitors in new technologies. The Carrot has been well eaten and tasted good. But it was another donkey that ate it.

Now, let's turn to the Stick. It is common knowledge that a good reform requires both a carrot and a stick, a good financial envelope needs a legislative framework to deliver. Therefore, the Von der Leyen Commission,

with Executive VP Timmermans at the helm, as the undisputed Master of the Green Deal, prepared an unprecedented legislative package to ensure that the European industry won't eat the 750 billion carrot without fulfilling the Green Deal's objectives of achieving EU leadership in GreenTech and CleanTech and meeting the Paris Agreement goals. However, analyzing the legislative aspect of the Green Deal is a rather challenging job. It is difficult to even list the legislative proposals in the Green Deal package. Depending on the point of view, the number varies between 20 and 30 legislations, not including any of the countless communications, strategies, and recommendations. It is, however, important to outline the most important ones:

First comes the "Climate law", which sets the binding targets for climate neutrality by 2050 and a 55% reduction in greenhouse gas emissions by 2030. A significant part of the other legislative proposals is aimed at the achievement of these targets, mostly by setting various administrative limits or quasi-market burdens on emitting industrial sectors.

The second, and by far most important part is the so-called "Fit for 55" package, the jewel in Timmermans' green crown. Here we have, above anything else, the new rules for the Emission Trading System (EU ETS), providing for accelerated phasing out of free ETS allowances for all industries already included in the scope of emissions trading and expanding the scope of emission trading to aviation and maritime transport sector, as well as (via a separate trading market, known as ETS-2) road transport and heating. The obvious goal of the ETS Directive revision, as proposed by the Commission, is to push the prices of emitting industries to higher levels, thus incentivizing state actors, industry, and consumers to speed up phasing out of fossil fuel combustion and modernization of all emitting processes. The 55% reduction of greenhouse gas emissions, the Commission rightly assesses, is not achievable if one generates a single MWh of energy by coal combustion, if coal and gas remain the ultimate energy base of metallurgy, if internal combustion engines run most of our transport vehicles and if gas heats most of our homes in winter. Whereas nuclear and renewable energy, along with some gas combustion facilities, used primarily for balancing the grid purposes, already seemed to successfully eliminate the coal combustion sector, strangled by the pricy ETS allowances, in the case of heavy industry, transport, and heating no net-zero technology was even close to real market deployment and price affordability: the two factors needed to sharply reduce emissions. So here comes the big ETS stick, warning, that as of 2026/27, no industrial and transport activity will be viable if new technologies aren't used, no matter their price or availability.

And then, with a dramatic effect, worthy of a Greek tragedy, on stage appeared the horsemen of Inflation and War. As mentioned above, the

main challenge to the “Carrot” aspect of the Green Deal was the COVID-19 pandemic. For the “Stick” aspect, it was inflation. It will never be known whether the “Fit for 55” package would have worked properly were there no 2021 inflation wave and no Russian aggression in Ukraine, followed by global disruption of energy markets. But, as it happened, the legislative package was announced in the wake of the first inflation wave, caused by the rapid rise in energy, mainly gas, demand, due to the post-Covid industrial recovery, combined with government overspending. Being pro-inflationary by design, the proposed measures on the ETS market additionally fueled inflation. ETS prices rose threefold, leading – together with spikes in international gas prices – to skyrocketing prices of electricity in Europe. Things only became worse after the beginning of the Russian aggression against Ukraine in February 2022 and the “Perfect storm” on energy markets, caused by the final phase-out of the German nuclear power generation, an unpredicted prophylactical shutdown of several French nuclear powerplants and severe draughts, affecting hydropower all over Europe.

It is not the topic of this article to assess the reaction of the European Commission and national governments in the EU to this critical situation. Overall, it should, however, be said, that this reaction deserved admiration and led to relatively swift and smooth overcoming of the crisis in the given circumstances. However, the energy and inflation crisis affected severely both the competitiveness of most EU industries and the purchasing power of EU households. Although the impact – mostly psychological – of the “Fit For 55” legislative proposal on inflation might be limited or even non-existent (the latter being an unrealistic assessment, due to the obvious impact on ETS markets), the unhappy coincidence could hardly be overestimated. Ever since the autumn of 2021, the “Green Deal” narrative in European societies has become more and more negative, up to the point where the very concept of climate action on the EU level was compromised in the eyes of a significant and active minority of voters in most Member States and even a majority in some.

Generally, this narrative – still very much active and strong today – doesn’t vary a lot in different EU countries. It could be easily summarized into three main points – The Green Deal is responsible (at least partially) for the cost of living crisis, for the deterioration of the economic perspectives for many agricultural communities, and above all else – for the decreasing competitiveness of the European industry on the global markets, especially vis-a-vis the US and China.

.... And on the Carrots....

So here is the dangerous irony of the situation – ahead of the European elections in 2024, and important national elections in several EU Member

states, the Green Deal is blamed not only for failing to fulfil its initial goal – for making EU industry more competitive, but for being effectively counterproductive and leading to the opposite result. Furthermore, doing so without any tangible result on reducing global greenhouse gas emissions, since it is common knowledge that reduction of greenhouse gas emissions in the EU alone might not contribute to tackling global warming. Quite on the contrary – moving EU industries abroad, the so-called “carbon leakage”, could easily lead to increased global emissions, due to more relaxed, or indeed non-existent, climate regulations in the new location of industrial installations, be it China, Indonesia, or Mexico. Europe could effectively contribute to achieving the Paris Agreement’s global goals only by successfully leading the way, showing practically working examples of industrial transformation and CleanTech development. And if – which seems to presently be the case – EU’s regulatory efforts to limit emissions lead to decreased industrial potential and output, these efforts will be, once more, counterproductive and serve as bad, rather than encouraging examples for the rest of the industrialized world.

And here we come to the last, and possibly most important part of this brief overview of the Green Deal reality – the place and role of the EU Green Deal within the context of a more and more protectionist world trade order, albeit the word “protectionism” is still seldom in use. The years post-2010 have been a period of gradual tightening of free trade between the main industrial actors anyway. The risk of “Carbon leakage” due to stringent greenhouse gas limits and high carbon prices has always been self-evident. Before “Fit for 55”, the EU was trying to tackle the problem via the so-called “free allowances”, provided for industries at risk of carbon leakage and vulnerable to imports from countries with no carbon market, or – in the case of China – with carbon market keeping the price of allowances at extremely low levels. Since the phasing out of free allowances is at the core of the ETS Directive revision, another instrument was needed to guarantee the survival of energy and carbon-intensive EU industries, at least till the hypothetical moment of the full decarbonization of their production processes.

In fact, the truth is - although few know it - that the Green Deal, and particularly the “Fit for 55” legislative package, has an answer. It is called the Carbon Border Adjustment Mechanism regulation, or simply CBAM, as the Brussels bubble calls it. The complicated name of the regulation tries to hide its real self – a carbon tariff, designed to close the EU market to goods, produced in jurisdictions with weaker climate regulation and carbon pricing, i.e. everywhere in the known world, except the UK and Norway. Of course, the CBAM is much much-needed addition to the revised ETS market, a sine qua non for the survival of energy-intensive industries in Europe. On the other hand, it is a casus belli, at least in terms of trade, a gauntlet thrown down, right at the

feet of not only the Chinese but the US and the whole Americas alike. Truth is, when proposing CBAM, the European Commission expected the recently inaugurated Biden administration to see it more as a friendly offer for concerted climate action than a provocation. But, given the American answer, one can consider the US got the EU wrong. Indeed, as expected, the new Democratic administration and majority resumed America's climate effort. But the way they did it, was far from coordinated with Europe and far from cooperative – the Inflation Reduction Act (IRA) is staunchly protectionist, and which is worse – going in a radically different direction than the EU's ETS+CBAM package. Where Europe proposes a combination of defensive pro-inflationary measures, increasing the prices of energy-intensive home production and imposing tariffs on imports, America's IRA provides for lavish subsidies and tax cuts for CleanTech and special offers for foreign (i.e. European) companies moving across the ocean. Ever since the IRA was adopted, negotiations have gone on between EU and US high-level officials. No results have been announced yet, hopefully due to caution and discretion, rather than desperately conflicting unreconcilable positions.

Hopefully, for the sake of Transatlantic unity, global security, economic growth, and, last not least, let's not forget the initial goal of what's going on, climate change mitigation – that some comprehensive agreement will be found shortly, saving US companies from CBAM tariffs and the Single Market from unfair competition practices. And yet, Pandora's box is already open. The mid-21st-century Industry 4.0 is to develop in the muddy waters of a very 19th-century political debate on international trade. Globalization has been under attack for too long, and for some good reasons too, and protectionism is always appealing to the majority and very expandable. Besides, well-organized pressure groups tend to be far more successful in influencing policy agendas in a protectionist policy setting. Innovators do not qualify in my opinion as a well-organized pressure group. To give some concrete examples: starting with steel and other energy-intensive products, we are already turning the page and openly discussing so-called "reciprocity clauses" in agriculture and even industry, raising a protectionist debate on a higher level, where not only tariffs but also direct import bans apply.

Of course, this is not an isolated phenomenon, specifically characteristic of the Green Deal – Europe. Protectionist narratives and practices become more and more common ever since the turbulent years after the 2008 financial crisis.

And some Wrap-up

And if at the end of this article one looks at its beginning, it would be fare to say that the stunning success of China and the US in the CleanTech

race with Europe (and Japan) is, at least partially, due to indulging in state subsidies and public debt, unknown in the past and openly incompatible with international free trade. Not to mention their long-term effects on the competitiveness in the US and China industries. The EU entered this subsidies „race to the bottom“ only recently and quite furtively. And which is more important – with 1% of European GDP distributed at the Brussels level, the EU doesn't stand a chance. But some bigger and wealthier Member states with more fiscal space, notably Germany and France, do. This sparks the big European debate of tomorrow, effectively starting today with Enrico Letta's competitiveness report and the Antwerp declaration, pleading for an "Industrial Deal for Europe" along with the Green Deal. Europe should either significantly expand the "Brussels' fiscal space" by adding so-called "own resources" at a large scale and increasing national governments' contributions, or relax state aid rules, thus threatening to end fair competition within the Single market.

Or ... wisely refuse to enter the debt+subsidies competition and design a much more market-based approach to achieve both climate and economic goals. Could – and that is the Trillion-dollar question – the EU do so? Do Europeans have the political will, financial know-how, and even pro-market mentality to go ahead of our global competitors when it comes to harnessing the financial market's resources, capabilities, and greed to close the investment gap, opened by China's and US subsidy policies and our own "Green Stick" approach towards industry and energy? I'm afraid we don't have the solution, and if one should answer today, an honest answer would be negative. However, in both business and government circles, some brave ideas are already discussed, for example, a much more ambitious approach to future ETS revenues and the development of new financial instruments, based on carbon pricing.

Now, that one tried to respond to the complex question "What is the Green Deal?", one has also some answers to the political concerns about its future and Europe's economic perspectives. The Green Deal is neither a failure nor a resounding success. As a growth strategy and a relevant investment package, it was certainly not enough, especially in the unpredicted hardships, caused by Covid and the Russian war of aggression against Ukraine. As a legislative package, it proved unfit for the inflation challenge and was – at least partially – politically compromised by the cost of living crisis. Still, it would be rather unfair to say the legislative aspect of the Green Deal doesn't work. The effect of its most important legislative component – the "Fit for 55" legislative package – is already visible, although the most important provisions haven't had their direct impact yet. The new (in fact, mostly old, but revised) legislations will most certainly deliver, and the EU's greenhouse gas emissions will be significantly reduced, even if the 55% target isn't met,

but maybe at a high economic price. Now everybody looks forward to the next Commission's legislative approach and notably – the “Industrial Deal”, based on Letta's competitiveness report. Smart legislation, combining administrative incentives, market approach, and innovative financial solutions might deliver the new “Carrot” our industry needs to move ahead, and in the right direction. In a competitive and not subsidized manner.

Last but not least - as a diplomatic tool, it is quite insufficient, to say the least. Ongoing negotiations with the global trading partners and WTO negotiations will give us more answers to the most important diplomatic issue – will the Green Deal enhance international cooperation and concerted climate action, or deepen the existing trends towards protectionism on a global scale? It is a common understanding, that successful climate policy could only be global, and that only the combined efforts of all global economic powers could help us achieve the aim of keeping global temperatures from rising above 2 degrees Celsius above pre-industrial levels till the end of the century. The different, even conflicting approaches of the EU and the US under the Biden administration, let alone China or India, do not give much reason for optimism. In effect, the CBAM on the EU side and the IRA on the other shore of the Atlantic represent two whole different philosophies for climate change mitigation, hardly compatible and ripe with trade conflict potential.

And when examining the political discourse in both great democratic powers, it becomes evident that there is less 21st-century climate sensitivity, than good old-fashioned 19th-century protectionism.

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Mr. Radan Kanev was elected Member of the EU Parliament in 2019, as part of the EPP group. He served on the Committee on the Environment, Public Health, and Food Control, as well as the Committee on Employment and Social Affairs and Committee on Petitions. He is an active member of the European Energy Forum and the SME Connect network. His work largely focuses on issues related to the green transition, market-based economy development and industrial transformation, working actively, inter alia, on the Just Transition Regulation, horizontally on all legislations in the Fit for 55 package, NZIA, EPBD, CSRD, PWD. He has previously occupied various political and civil positions, including Member of the Bulgarian National Assembly. Radan holds MA in law from Sofia University, having also graduated the French Highschool in Sofia.

BOLSTERING ENERGY SECURITY THROUGH MARKET COUPLING: A US-EU “ENERGY BRIDGE” TO SUPPORT ELECTRICITY MARKET INTEGRATION IN THE WESTERN BALKANS¹

**Dimitrios Maos – Counsellor for Economic and Commercial Affairs,
Hellenic Ministry of Foreign Affairs²**

Introduction: Setting the context

The title of this Article is “*inspired*” by a US Government-sponsored Initiative with the name “*US-Europe Energy Bridge*”, which was initially launched in 2020³ and constitutes ever-since a significant element of the new generation of “*United States Agency for International Development’s*” (USAID) continued development assistance programming, focusing on energy security and critical infrastructure protection throughout the greater region of Europe and Eurasia. This Initiative has gained a new, stronger momentum since Russia’s invasion of Ukraine in February 2022 and, among other important objectives, it assists **electricity market integration** of non-EU countries that follow a path to EU membership, mainly from an “*energy security*” standpoint.

Thus, on this ground, the Article touches upon an important aspect of contemporary energy developments in the Region of Southeast Europe (SEE), which is the process of “*Electricity Market Integration*” or “*Market Coupling*” in its subregion, the Western Balkans. This Region’s energy future is of particular importance to both Transatlantic partners and allies, the EU and the US, since its states are currently facing the “twin challenges” of energy security and energy transition alongside their long-standing commitment to fulfil the various conditionality criteria towards full EU-membership. Struck by the overwhelming realities of the global climate crisis and geopolitical turmoil as well as by their many “vulnerabilities”, the WB6 countries are currently in big need of further support, be it political, institutional or material. According to the Article’s main argument, this support is currently provided by the US Government and EU Institutions by means of an “**Energy Bridge**”. In the following sections, the Article focuses on some recent initiatives undertaken by the Transatlantic partners and allies - *the US and the EU* - towards supporting the Integration of WB6 states’ Power Markets into the Single European Market for electricity, through the lenses of two different approaches; namely the US approach prioritizing “energy security” and

¹ The author would like to thank H.E. Ambassador Maria Papakonstantinou for supporting this contribution.

² **Disclaimer: The views expressed in this Article are those of the author and do not necessarily represent the views of the Hellenic Ministry of Foreign Affairs.**

³ Link: [<https://tinyurl.com/mr3d785n>]

“critical infrastructure protection” and the EU approach prioritizing “green energy transition” and “market design”. Market Coupling will be manifested as an illustrative example of how those two approaches combined, can work in practice towards supporting the same goal.

Geopolitical implications of electricity trade and cross-border integration of grids and their relevance for the Western Balkans Region

Lately, a number of studies and analyses focusing on the geopolitical implications of the global shift to electricity trade and cross-border integration of grids have been published on both sides of the Atlantic⁴. The main idea behind them is, *grosso modo*, the following: In order to meet the global climate targets, the overall energy transition process is driving increased reliance of the energy systems on the use of cleaner forms of energy, mainly renewable energy. The latter, in turn, drives increased reliance on more “*electrification*”, in the form of expanded, stronger and smarter grids, to handle the excess electricity load. By extension, the energy transition is driving this global push towards cross-border integration of electricity grids and development of electricity interconnectors. This brings the need for their further development and expansion which, on its side, requires technological upgrading to allow more efficient management of electricity flows. The intensive technological upgrading entails, first, increased global geopolitical competition for technological supremacy; secondly, it pushes for constant attention to grid requirements, consumer trends and the need for versatility in (market) design, procurement and installation of infrastructure. As a result, a new paradigm for energy security analysis and risk assessment is stepping in to help analyze the geopolitical implications of this global energy transformation.

This new paradigm substantially differs from traditional “energy geopolitical approaches” focused on oil and gas – the reason for this being the fact that, electricity has different attributes than fossil fuels as regards its potential to be used either as a “geopolitical tool” or as a “geopolitical weapon”. E.g., unlike primary energy sources like coal, oil or natural gas, electricity cannot be directed along a politically-determined, specific route – the laws of physics dictate that power flows along the path of least resistance. Further, unlike oil and natural gas which can be stockpiled for commercial or strategic purposes in massive quantities in tanks or ships, large amounts of electricity cannot be stored economically using today’s technology. Last but not least, electricity trade tends to evolve more symmetric interstate imports-exports

⁴ See for example: 1) K. Westphal, M. Pastukhova & J. Maria Pepe (2022), “*Geopolitics of Electricity: Grids, Space and (political) Power*”, German Institute for International and Security Affairs, SWP Research, Paper 6, Berlin and 2) Amy Myers Jaffe, Ted Loch-Temzelides & Chiara Lo Prete (2023), “*Geopolitics of Cross-Border Electricity Grids - A Working Paper*”, NYU SPS Center for Global Affairs.

relationships, leaving little room for geopolitical manipulation. However, this logic cannot really exclude the possibility that power asymmetry could exist in power grids, so that it could be used as a potential “geopolitical weapon”.

According to the International Energy Agency, *“the share of electricity in satisfying global electricity demand is expected to more than double, rising from about 20% of final energy consumption today to 50% by 2050”*⁵. Thus, *the share of electricity in the energy mix is expected to increase as this trend continues worldwide. The global energy transformation towards more electrification and interconnectivity is altering relations between states and groups of states, affecting the global distribution of power and creating new opportunities as well as new vulnerabilities. In a more electrified world, there will be economic and geopolitical gains for countries or blocks of countries which serve geographically as connectivity hubs for electricity infrastructure management and trade or, alternatively, for countries who could threaten those hubs. The need to establish new standards for electricity generation in the strive to meet the ever-growing plans for expanding electricity networks towards geographical spaces (considered until recently as “border” or “peripheral areas” of leading economic centers), accentuates the need for placing more emphasis on the analysis of the interplay between infrastructure, space and political power.*

This is where new concepts developed, such as *“infrastructurised”* and *“legal”* spaces, *“network / grid communities”* and the development of *“centre-periphery links”* in establishing supranational electricity networks come into play to help us understand the nascent geopolitics of electricity. *“Infrastructurised”* spaces are created by interconnectors and electricity corridors that link national electricity grids in a synchronous manner, through HVDC-technology transmission lines, and allow electricity flows freely in all directions (according to Kirchhoff’s laws)⁶. The electricity flows are controlled within a *“techno-political grid space”* that penetrates and spans different territories and jurisdictions. The most important role is held by market players that are able to control and regulate electricity flows, thus influencing other players therein. *“Legal”* spaces build on the infrastructure by way of creating a transparent *“level playing field”*, namely by enforcing various standards and rules for electricity market participation, but confine their influence only to specific territories. An example of such a space is the integrated electricity network operating synchronously within the internal EU energy market⁷.

Synchronized electricity grids (achieved when voltage and frequency

⁵ International Energy Agency (2021), *“Net Zero by 2050: A Roadmap for the Global Energy Sector”*, p. 60 [<https://rb.gy/siq1bd>].

⁶ Westphal et al. (2022), p. 55.

⁷ Nedko Kosev PhD. (2023), *“Geopolitical Projections on the European Electricity Market, and Their Bulgarian Dimensions”*, BDI *“Energy and Climate Diplomacy 2023”*, pp. 141-142.

match), create a community marked by “*electricity solidarity*” – a “*common electricity destiny*”. This is because the participating states share the same opportunities and risks as well as the same rights and obligations in the synchronized grid. Scholten and Bosman⁸ refer to this as “*network communities*”, which are being formed based on common regulations and drivers for a mutual economic benefit while sharing risks associated with network security maintenance. In a synchronized grid, the balance of power is distributed more evenly among states and the risk of deliberate supply disruption to a certain country is minimized. Setting up “*network communities*”, is a prerequisite for a higher country-to-country trade volume and for establishing a competitive trading environment and, consequently, for ensuring a constant electricity supply at affordable prices. In this sense, synchronized interconnected grids constitute “*Centres of gravity*”, namely infrastructurally and industrially dense spaces characterized by a high density of economic and social transactions, normative-political homogeneity and a low degree of permeability to external geopolitical power. On the other hand, “*Peripheries*” are characterized by poor infrastructure, weak industrialization, variable socioeconomic conditions, weak political apparatus and high permeability to external geopolitical power⁹.

The European continental electricity system and synchronous area is a perfect example of a highly integrated and attractive “*centre*” that has grown historically and has been developed on several levels. Inclusion in this synchronized interconnected grid, ties and connects neighboring countries to the EU, as is the case with the WB6 countries representing the “*periphery*” of geopolitically, socioeconomically and infrastructurally vulnerable countries of the SEE Region. In the past, integration of peripheral Regions and countries into the European electricity grid community was seen as a “precursor” to EU accession. However, since the adoption of the “*EU’s electricity market acquis*” by the Ministerial Council of the Energy Community in December 2022, participation in the electricity community serves as the EU’s “forecourt” (“*principle of reciprocity*”). **Thus, by promoting close and synchronous electricity interconnections and by supporting electricity market integration in the Western Balkans Region, through “Market Coupling”, the EU and the US become “enablers” of “network communities” in this region, with obvious geopolitical, economic and environmental gains.**

⁸ Daniel Scholten and Rick Bosman, “*The Geopolitics of Renewables: Exploring the Political Implications of Renewable Energy Systems*”, *Technological Forecasting & Social Change* 103 (2016): 273–83.

⁹ Westphal et al. (2022), pp. 11-12.

The Western Balkans Region: Balancing between Energy Security and Decarbonisation

The impact of the “COVID-19” pandemic and the ensuing global rise in energy prices in 2021, had caused a significant economic shock in the Western Balkans Region and had created a new range of economic challenges to its states (WB6). Russia’s war in Ukraine since February 2022 has exacerbated the situation on the ground, resulting in steep increases in electricity wholesale prices (tied to natural gas prices) that negatively affected the Region’s economic development, further weakening its already fragile energy security and putting more strain on its countries’ difficult path towards decarbonisation. In terms of security of energy supply, the Western Balkans Region, as part of the greater SEE Region, appears more vulnerable than other regions of Europe (mainly Western European countries). This is due to its high dependence on solid fuels (coal / lignite) for power generation, the as yet limited import options (mainly for gas), its difficult morphology and poor energy infrastructure and its overall reliance on a small number of suppliers (or even a single supplier, in some cases) for oil and gas. Lately, the list of energy security risks in this Region has been broadened to include physical hazards as well as hybrid (external) threats to its critical infrastructure.

With the exception of Albania, which relies heavily on hydropower, most states in the WB Region mainly rely on coal and coal-fired power plants to meet their growing energy needs¹⁰. The use of these plants jeopardizes their ability to fulfil the commitments outlined in the “*European Green Deal*” - one of which is a 55% reduction in carbon emissions (compared to 1990 levels) by 2030. Nonetheless, given the immediate nature of the energy security crisis, these countries will need to continue burning coal in the short term. Indeed, North Macedonia and Kosovo*¹¹ have already announced that they will delay plans to phase out their coal-fired power plants over the next few years. The large amounts of indigenous coal and lignite deposits provide relatively cheap and easily accessible energy supplies for most countries of the Region and employment benefits to certain social groups and, therefore, are seen by the EU Institutions and m-s as preventing a determined move towards greater decarbonisation. Thus, in view of high energy security requirements, the issue of decarbonisation in this Region acquires a new dimension. Simply put, there is a huge incompatibility between stated and adopted EU goals for decarbonisation and many of the countries’ silent commitment to continuing large-scale solid fuel use.

¹⁰ Panel I, Joint IENE-ROEC Conference “*Decarbonization Policies in South East Europe: Between Climate Change and War*”, European Commission Representation in Romania, Bucharest, March 13th, 2024.

¹¹ **This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.**

However, several countries in this Region are simultaneously developing renewables capacities, despite their financial and legal constraints, and are keen on developing other carbon-free resources (e.g. hydrogen and renewable gases) as well in the longer term. The rise of Renewables in this Region for electricity generation purposes, especially over the past 10 years, has been steady and is improving¹².

SE Europe – West Balkan (Albania, Serbia, Bosnia & Herzegovina
Montenegro, Kosovo, North Macedonia)



- Montenegro RES installed capacity remained stable at 830 MW (Hydro including). Plans to produce up to 300 MW of new solar power by the end of 2024. By 2030, Montenegro is obligated to reach a 50% share of renewable energy in total final consumption.
- RES installed capacity in Serbia is 3.1 GW. Plan for adding 3,000 MW in the years to follow. From 2021 until this year, the number of requested connection capacity grew from a large 3.8 GW to 20 GW, while Serbia has 8 GW electricity installed capacity in total.
- Bosnia 2.1 GW RES installed capacity. BiH affirmed its target to achieve a 43.6 per cent share of renewables in gross final consumption by 2030
- Albania RES installed capacity reached 2.5 GW. Albania produces almost all of its energy from hydropower. Only 30 MW coming from PV
- North Macedonia had no growth in total renewables, remaining at 831 MW (mainly Hydro). North Macedonia has committed to a coal phase-out by 2027. Plan to increase the share of renewable energy sources in its gross energy consumption to 38% by 2030
- Kosovo has 150 MW RES installed capacity (Wind & PV). Increase RES to at least 35 percent of the generation mix, reduce greenhouse gas emissions by 32 percent, and phase out at least one lignite-fired generation unit by 2031.

(Source: Presentation of Mr. N. Sofianos at “IENE & ROEC Conference”, Bucharest 13th March 2024¹³)












This trend is reinforced due to the recent energy crisis and the high market prices that somehow spread the RES investments in this Region. Also, several WB6 states and Energy Community Contracting Parties, such as Albania, B&H and Serbia, have recently taken significant steps in adopting relevant “RES Laws” (or amendments to them) as a prerequisite for the implementation of the “**EU’s electricity market acquis**”. The Region has great untapped potential for RES development and possesses abundant resources, whose exploitation is already part of local people’s daily lives. Considerable mention has to be made to installed hydropower capacity and to the extensive use of biomass for residential heating purposes. In fact, despite having an installed hydropower capacity of more than 22 GW, the whole SEE region still has the largest remaining unexploited hydropower potential in Europe, as its river catchments have remained largely undeveloped. Last but not least, the WB Region is also endowed with rich solar and wind resources, especially along the Adriatic Coast which, according to “IRENA”, enjoys good level of solar

¹² For a comprehensive overview of SEE Energy Markets over the past few years, see IENE (2022), “SE Europe Energy Outlook 2021/2022” [<https://www.iene.eu/en/congress/47/iene-study-see-energy-outlook-2021-2022>].

¹³ Link: [https://www.iene.eu/articlefiles/inline/sofianos_13%2003%202024.pdf]

radiation and wind speeds for developing various RES projects such as solar PV, onshore and even offshore wind installations¹⁴.

Table 3.1 Technical potential in the region for utility-scale solar PV, wind and hydropower in the power sector (TJ)

	Utility-scale solar PV	Onshore wind	Hydropower
 Albania	13 342	49 154	56 059
 Bosnia and Herzegovina	14 886	94 810	88 193
 Bulgaria	36 468	190 264	48 071
 Croatia	15 682	104 951	30 600
 Kosovo*	3 006	13 860	4 853
 Montenegro	3 874	23 332	18 079
 North Macedonia	8 014	27 558	14 421
 Republic of Moldova	21 758	180 450	12 099
 Romania	92 902	554 522	136 800
 Serbia	33 509	188 590	64 800
 Slovenia	1 613	8 266	58 539
SEE	245 052	1 436 156	532 515

TJ = Terajoule

Source: IRENA/JRUL (2017)

(Source: IRENA (2019), “Renewable Energy Market Analysis: SE Europe”¹⁵)

As the Region is moving towards greater RES penetration, it is also moving towards greater electrification and, hence, the need for more expanded electricity grids. The need for accelerated electrification, in turn, also raises certain key challenges, such as the need for secure and uninterrupted electricity supply. In an era of geopolitical turmoil and global climate crisis, secure and continuous electricity supply is jeopardized by multiple potential disruptions, such as man-made threats (e.g. terrorist acts, cyberattacks) or natural disasters (e.g. forest fires, floods, earthquakes)¹⁶. The WB6 states are very much exposed to these risks, due to poor energy infrastructure, lack of know-how on how to address them, long-term underinvestment in their energy sector as well as delayed development of electricity markets (market integration / coupling). Therefore, regional cooperation and support also needs to be strengthened to help build-up the overall resilience of their power systems and their ability to perform proper and continuous risk assessment against the evolving nature of the various external threats. A very important development to address the above challenges, has been the adoption in the WB6 Berlin Summit in November 2022 of the “*Declaration of Energy Security*

¹⁴ See also EU Commission’s Final Report (March 2022) “*Study on the CESEC Cooperation on Electricity Grid Development and Renewables*” [<https://data.europa.eu/doi/10.2833/594432>]

¹⁵ Available at: [<https://www.irena.org/publications/2019/Dec/RE-Market-Analysis-Southeast-Europe>]

¹⁶ Link: [<https://www.iene.eu/articlefiles/inline/mateska%20-2%20-%2014th%20seed.pdf>]

and *Green Transition in the Western Balkans*¹⁷”, which actually recognizes the need to transform the energy sector and align the legislation to the EU and Global Objectives (“European Green Deal”, “Paris Agreement”, “Energy Community” commitments) and stresses the necessity for:

- **i.** Development of adequate conditions for investments in the electricity sector, on both supply and demand side;
- **ii.** Development of regional cooperation to manage emerging crisis and build up overall resilience in the energy sector;
- **iii.** Development of liquid electricity markets (SDAC, intra-day and balancing markets); and **iv.** Timely transposition and implementation of “Clean Energy Package (CEP)” acts.

The key issue for the Western Balkans in the present situation, is how to solve the difficult puzzle of reconciling increased short term energy security demands with the need to advance at the same time longer term decarbonization policies. The interplay between energy security and energy transition goals in this Region is multifaceted and complex, and attracts the attention of policy makers and institutions alike, due to its geopolitical, economic and environmental implications. In this respect, the main perspectives highlighted on this issue are the following:

Policy makers increasingly recognize the importance of **transitioning to sustainable energy sources** to mitigate the impacts of climate change and reduce reliance on fossil fuels. In the context of the WB, this transition includes a shift from coal-based energy production to renewable energy sources such as hydropower, solar and wind energy. Policy makers should emphasize the need for **investment in renewable energy infrastructure and technologies** to achieve the energy transition objectives and should also consider the **social impact** of the energy transition, in particular in terms of employment and affordability. The transition from coal mining and fossil fuel industries may lead to job losses in some communities, requiring measures to support workers and affected areas. Equally, ensuring **energy security** is also a top priority in the WB Region, since the latter has historically been affected by geopolitical dynamics, with competing interests from various external actors. Also, energy security encompasses several aspects, including diversification of energy sources, infrastructure development and reducing vulnerability to supply disruptions. Policy makers should focus on strengthening **regional cooperation** and **integration of energy markets** to improve energy security and resilience to external shocks. To this end, the importance of **energy infrastructure investments** to support economic growth and regional integration is paramount. This includes the development of

¹⁷ See also Link: [<https://balkangreenenergynews.com/berlin-declaration-reaffirms-regional-energy-cooperation-in-western-balkans/>]

transmission networks, cross-border electricity interconnections and storage facilities to facilitate the efficient exchange of energy between countries in the Region. Moreover, balancing **environmental concerns** with energy security and economic growth remains a key challenge for policy makers in the Western Balkans, which can be addressed through policies aimed at reducing carbon emissions, improving air quality and preserving natural habitats. Finally, **alignment with EU energy standards and regulations** is crucial for integration prospects, pushing policy makers to undertake reforms in areas such as energy market liberalization, energy efficiency, regulatory harmonization and environmental protection and to utilize EU financial instruments to finance critical energy infrastructure projects in the WB Region¹⁸.

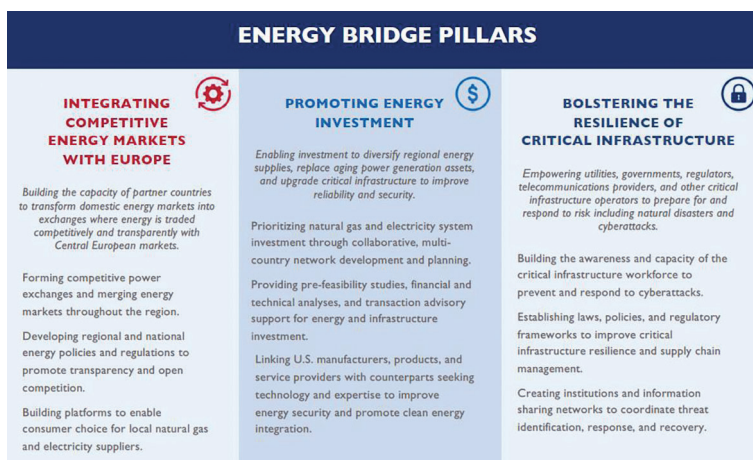
USAID’s “U.S. – Europe Energy Bridge” Initiative: Building WB’s Energy Security

The US, by virtue of its geographic position on a relatively “isolated” continent - distant by sea from key US allies in Europe - is unlikely to play a direct role connecting its vast domestic electricity grid to other countries. However, as a global geopolitical actor, it promotes other ways to remain relevant to the energy security needs of its allies in Europe. One of the main ways through which it manages to do this, is by “blending” its traditional approach of more than 30 years of continued development assistance programming to its partners in Europe and Eurasia (Legacy Programs) with its new priorities in “energy diplomacy” for this Region, namely energy security and critical infrastructure protection. This “blending” is realized through the launching of the “U.S. - Europe Energy Bridge” Initiative, which constitutes USAID’s strategy for strengthening the energy security of its partners by connecting them to American investors, technology, and expertise / operational experience. According to USAID’s mission statement: “*These linkages create a path to more reliable, affordable energy for businesses and consumers and promote integration with regional and global energy markets - empowering partners to break free from the energy and financial traps that produce insecurity and instability. This foundational work will lead to a more secure Europe and accelerate a just and secure clean energy transition for the region*”¹⁹. Through the “Energy Bridge”, USAID is creating more secure energy supply lines, linking the public and private sector organizations to improve energy infrastructure, and protecting critical infrastructure from disasters ranging from floods to cyberattacks.

¹⁸ Main Conclusions from Session I of “Energy Transition Towards the Green Agenda Conference” organized by the “Foreign Investors Association of Albania” (Tirana, March 15th 2024) [<https://albanianenergysummit.al/>].

¹⁹ See more details here: [<https://www.usaid.gov/about-us/organization/bureau-europe-eurasia/us-europe-energy-bridge>]

The focus of the Initiative is on countries surrounding the EU, such as the WB6 countries, and aims at establishing critical market and regulatory preconditions for infrastructure project development. Besides, the Initiative allows USAID to partner with former development assistance recipients and EU m-s to assist the current recipient countries in their needs. The central philosophy of the Initiative is that “energy independence is a vital necessity to preserving democracy and security in the region” and, therefore, through the “Energy Bridge”, USAID empowers its partners to make their own choices regarding energy supplies and sources, to attract investments in energy infrastructure and to shape their own democracies free from potentially destabilizing interventions in their energy sectors by foreign actors. That means “self-reliance” for the recipient countries, which comes through “capacity-building” and “market liberalization”. This “strategic approach” was further sharpened after Russia’s invasion of Ukraine in 2022 and its subsequent policy of “weaponization” of energy supplies and underscores the US Government’s renewed commitment to the WB Region’s energy security. The 3 key “Programmatic Elements” or “Pillars” of the “Energy Bridge” Initiative are presented below.



(Source: USAID (2023), Factsheet “US-Europe Energy Bridge: Building Europe’s Energy Security”)

The first Pillar, “Integrating Competitive Energy Markets with Europe”, constitutes a long-standing goal that USAID is pursuing as energy markets continue to evolve. Countries in the “periphery” of Europe, such as the WB6 countries, are trying to move up to western regulatory and market standards and they are asked to do this in less time than most developed economies did it in the past. In this regard, USAID is working very closely with the Energy Community Secretariat to help its Contracting Parties modernize their energy markets, fulfil capacity-building requirements and

align their national legislations with EU legal and regulatory acts. Regarding the emerging challenge to the energy systems, cyberattacks, what USAID is trying to do is bring cybersecurity aspects to the DNA of recipient countries' organizations (Regulators, TSOs-DSOs, Power Exchanges) so that they build resilience against incidents or potential strategic attacks targeting their critical infrastructure items (e.g. grids). As energy systems and markets become more "digitalized", cyberattacks may lead to serious disruptions in electricity supply and jeopardize energy markets by tempering essential data and information. Therefore, US Organizations with extensive experience and technical expertise in the field of cybersecurity, such as the United States Energy Association (USEA) and the National Association of Regulatory Utility Commissioners (NARUC), are working closely with organizations and utilities in the recipient countries to assist them with cybersecurity improvements. Last but not least, USAID assists those countries in moving their local markets through the very technical regulatory requirements into coupling their electricity markets with EU and neighboring countries and forming Power Exchanges according to relevant EU Legislation (The "EU Target Model" for electricity markets), and even provides more tools and resources on the retail side for consumers and on attracting more private sector investment.

A good example in this respect is the Energy Bridge's "*Southeast Europe Electricity Market Coupling (SEE-MC) Initiative*". Under USAID's "*SEE-MC Initiative*", the US National Association of Regulatory Utility Commissioners (NARUC) has partnered with the Hellenic Regulatory Authority for Energy, Waste and Water (RAEWW) and will initially focus on Albania, Kosovo* and North Macedonia by improving their readiness to couple electricity markets with their neighbors and advancing internal power market development and operations²⁰. "*SEE-MC Initiative*" will also support these countries in establishing collaboration and commitment among government officials, National Regulatory Authorities (NRAs), Power Exchanges (PXs), and Transmission System Operators (TSOs) to achieve this objective. The overall objective of this assistance is to advance the development of competitive and transparent electricity markets in the Western Balkans and integrate them with the rest of Europe. Doing so will optimize the use of cross-border electricity interconnections and trade and will lead to reduced infrastructure investment costs and a more sustainable clean energy transition in this Region²¹. A series of trainings to bring together NRAs, TSOs and PXs from WB countries have already been organized to explore electricity market integration requirements based on Greece's previous experience in launching three power markets in 2020 and coupling with Italy and Bulgaria soon after (via the *Italian Borders Working Table* - IBWT). The first two trainings, in June

²⁰ Link: [<https://www.naruc.org/international/where-we-work/europe-and-eurasia/>]

²¹ Link: [<https://www.iene.eu/articlefiles/inline/dagoumas%20e%20&%20a%202023.pdf>]

and October 2022 respectively, focused on establishing the necessary PX segments (i.e., single day-ahead market and intraday market), highlighting the benefits of regional market integration, and identifying key stakeholders, decision-makers, and their roles as well as the role of the TSOs and PXs and the regulator's responsibilities as the market coupling process evolves.

Finally in November 2023, two important Memoranda were signed in Athens: 1) A "*Memorandum of Understanding to improve energy security and cooperation in the Western Balkans between USAID and the Government of the Hellenic Republic*"²², which is part of the "*U.S. - Europe Energy Bridge*" and 2) A "*Memorandum of Understanding for Electricity Day-Ahead Market Coupling in the Balkans*" to formalize agreement between 11 energy entities (NRAs, TSOs and PXs) from Greece, Albania, North Macedonia, and Kosovo* in order to prepare for the next step towards electricity market integration. The signatory parties of the said countries agreed to set up a Working Group to coordinate forthcoming actions. This initiative paves the way for the creation of a single electricity market in Southeastern Europe, which will be interconnected with the Single European Market for Electricity²³. It shall be reminded that the integration into Market Coupling for Energy Community WB6 countries / Contracting Parties must be achieved by the end of 2025. Greece, in particular, plays a vital role in promoting regional energy cooperation and market integration initiatives as an EU and Energy Community member-state, thanks to its matured wholesale electricity market and well-developed electricity infrastructure (e.g. transmission lines, interconnections).

EU Electricity Market Design for a Decarbonised Future in the Western Balkans

On 15 December 2022, the Energy Community Ministerial Council adopted the landmark Decision "*2022/03/MC-EnC*"²⁴ on the incorporation of the EU's electricity market acquis in the Energy Community, together with Procedural Act "*2022/01/MC-EnC*" on fostering regional energy market integration. With these acts the Energy Community Contracting Parties (EnC CPs) obliged themselves to bring into force the laws, regulations and administrative provisions necessary to comply with the EU legal framework. This set of legislation known as the "*Electricity Integration Package*" (EIP), is the largest one incorporated so far by the EnC and paves the way for the full market integration of EnC CPs, including the WB6 countries, into the single European Market for Electricity, based on the "*principle of reciprocity*". "*Reciprocity*"

²² Link: [<https://gr.usembassy.gov/usaid-signs-partnership-with-government-of-greece-to-improve-energy-security-in-western-balkans/>]

²³ Links: [<https://www.rae.gr/genika-nea/73803/>] and [<https://tinyurl.com/mr3fefx4>]

²⁴ Link: [https://www.energy-community.org/dam/jcr:d5a1a894-88db-4326-818b-f2c648bd237e/Decision03-2022-MC_newELacquis_15-12-2022.pdf]

means that, during the integration process, EnC CPs are to be treated on an equal footing with EU m-s. Encompassing nine acts, the EIP aims to make the markets fit to deliver on cost-efficient clean energy transition while ensuring secure and affordable electricity supply to the citizens. It also facilitates EnC CPs' integration into the Single Day-Ahead (SDAC), Intraday (SIDC) Market Coupling and the European Platforms for exchange of balancing energy. Those markets for wholesale electricity products form the so-called "European Target Model", as formulated by the "Agency for the Cooperation of Energy Regulators" (ACER), according to which the domestic wholesale electricity market is organized and includes all the rules and provisions for the creation of an internal European electricity market that promotes cross-border trade, produces economic results and serves the best use of interconnections to ensure the uninterrupted energy transit.

The Contracting Parties commenced the transposition of the EIP with consultancy support provided by the EU under the "*EU4Energy project*", other donors (USAID) and by the EnC Secretariat. Until the set deadline of 31 December 2023, none of them was able to complete the challenging task of transposing the EIP provisions into their national legislations, including the crucial transposition of the ACER Regulation that defines the regulatory governance on the interfaces between EU Member States and EnC CPs in coupled markets. Transposition in a fully compliant manner and full harmonisation with the EU rules, is required for the EnC CPs stakeholders to join the EU's electricity market. Transposition delays have affected various elements of the EIP, such as the designation of Nominated Electricity Market Operators (NEMOs) and operationalization of Capacity Calculation Regions (CCRs) defined in the "*CACM Regulation 2015/1222*".

Further, significant developments related to the Day-Ahead Markets took place in 2023 and the beginning of 2024 in the WB Region. In 2023, Albania, Montenegro and North Macedonia, as Serbia already did in 2016, launched day-ahead electricity markets, while on 31 January 2024 the Albanian Power Exchange (ALPEX) held its first day-ahead auction for electricity delivery in Kosovo*, which marked the inauguration of the day-ahead market in Kosovo* and initiated the Albania-Kosovo* day-ahead market coupling. Apart from day-ahead market, "SEEPEX" from Serbia has also established the intraday market since July 2023. Up to a certain extent, those measures were reported in the Region to shield end-users from market fluctuations and the most interconnected countries of WB have experienced prices comparable to the EU. The next steps to this process are further convergence of the electricity markets (and market prices) of WB and their full integration into market coupling, which must be achieved by the end of 2025.

But what exactly "*market coupling*" means for the EU, the US and the WB

Region and why is it so important for the latter's future energy transformation and independence? Market Coupling is important for the EU to implement in WB, as it needs to deal with the issue of "*market fragmentation*", whereas for the US it is important because it helps to protect WB countries against energy supply disruptions and "*democratize*" the energy sector so that it cannot be "weaponized" by any malign actor. This particular Region comprises countries with small, isolated, illiquid markets with incumbent producers, where there exists so far little or no competition. In order to increase liquidity and social welfare as well as to provide market participants with the possibility to trade efficiently across the continent and not just locally, "*market coupling*" is the most efficient known method today. It allows for transparent trading and allocation of cross-border capacities provided by the collaborating TSOs and helps to avoid high-risk and costly procedures involving market activity in different bidding zones. The bigger picture to this is that "*market coupling*" is also done for the purpose of security of supply, which means that it serves the need to deliver the energy from the place where it is produced to the place where it is consumed, in the most efficient, transparent and cheapest way, provided that there is also sufficient grid infrastructure in place to facilitate the physical flow of electricity. Indeed, the "*market coupling*" process is designed in such a way as to remove the risks associated with the supplier having to go to neighboring bidding zones to buy efficient amounts of electricity and risking failure on the "border" (failure to obtain the import right of cross-border capacities from neighboring TSOs). Instead, with "*market coupling*" there is only one step which is bidding at the local Power Exchange. Also, since the regulatory environment under "*market coupling*" is known to market participants, they feel safer and they do not include "risk-premiums" in the prices, so the electricity trading becomes more efficient. Thus, "*market coupling*" allows the flow of electricity from the sources of its production anywhere in Europe to the centers of its consumption anywhere in Europe, which is then processed by a "*single algorithm*" (PCR EUPHEMIA) and by the infrastructure of TSOs and then Power Exchanges are operating the market by providing the trade platforms. In conclusion, entering the SDAC and SIDC market segments, where all NRAs, TSOs and PXs are involved, is for WB countries like entering a "*mini-EU*" - *the EU's "forecourt" as mentioned previously* - where they operate with all Europe, with the same rights and obligations as EU m-s and with resources put forward for "market coupling" operations being divided proportionately.

“Interconnecting Spaces”: Planning for New Electricity Corridors in Southeast Europe

Successful implementation of electricity market integration projects in the WB and in the whole SEE Region is subject to several requirements, the most important of which is sufficient physical systems interconnection

that can be achieved with grid development and electricity interconnectors. Grids are the backbone of a well-functioning energy system, and timely grid development will be key to accelerate the clean energy transition in SEE. In addition, by investing in cross-border interconnections, countries in the Region can harness the full potential of their energy markets and resources and reap the benefits of a more interconnected and competitive energy landscape. In this respect, it is important to highlight here the critical role of two EU institutions in pushing forward energy transition in the greater region: “ENTSO-E” and the “CESEC” process. According to the “*European Network of Transmission System Operators for Electricity*” (ENTSO-E), in order to address the key challenge of our times, “*climate change*”, transmission and distribution grids must greatly expand until 2030 and electricity grids will need to take up almost 1/3 of all net-zero investments globally. The focus of the investments is on interconnections, digitalization and upgrades due to electrification. New electricity grids projects should be actively promoted and facilitated to ensure the development of a climate-resilient infrastructure, aligning *inter alia* with the objectives outlined in the recently published EU Commission’s “*Action Plan for Grids*”²⁵. This Plan emphasizes the need for robust and interconnected networks to support the increased integration of RES by:

- i. Planning and delivering Europe’s future Electricity System;
- ii. Facilitating financing the ramp-up of investments;
- iii. Ensuring adequate and sustainable manufacturing capacity and
- iv. Enhancing regulatory drivers.

According to ENTSO-E’s latest TYNDPs (2022,2024), these developments require timely reinforcement of transmission infrastructure, coordinated across borders. In particular, stronger interconnection needs between EU and non-EU members (EnC CPs) is an issue of utmost urgency which must be addressed.

For WB6 countries, the establishment of a denser network of electricity interconnectors with the EU could prove to be vital in boosting clean energy exchanges with different parts of the continent in the future and, thus, help in strengthening energy security and further advancing their decarbonisation agenda. The newly built tie-lines, will need to be followed by investments in national networks to ensure maximization of benefits, since most existing interconnections experience significant levels of congestion and require technological upgrades which are now possible, thanks to the application

²⁵ Link: [https://ec.europa.eu/commission/presscorner/detail/en/ip_23_6044]. In total, the Commission estimates that €584 billion in investments will be necessary for electricity grids by 2030, with the majority going into local distribution networks to make them “digital, monitored in real-time, remotely controllable and cybersecure”.

of “High-Voltage Direct Current technologies” (HVDC) in transmission lines that offer several technical advantages (e.g. low transmission losses over long distances) over the hitherto more widely used “Alternating Current technologies” (AC). On top of that, the evolution of carbon pricing (CBAM) will be a key determinant of how power systems would operate in this Region, as it will enable adequate internalization of the negative externalities of emissions. Addressing these issues along with market integration could not only reduce the price differences and help to better manage demand and supply fluctuations (flexibility) in the WB Region, but also contribute to system stability and reliability in the coming years.

Pursuant to the adoption of the new *TEN-E Regulation (EU) 2022/869*, the Energy Community Ministerial Council in December 2023 decided to establish rules for identifying “*Projects of Energy Community Interest*” (PECIs) and, since February 2024, it has commenced a selection process for Projects covering various infrastructure categories crucial for the electricity sector (e.g. HVDC transmission lines, smart electricity grids, equipment enabling transmission of offshore renewable electricity). This process is expected to be completed in December 2024, when the Ministerial Council will adopt the final PECEI list.

Finally, The *Central and South-Eastern Europe Energy Connectivity* (CESEC), a platform including several EU m-s and the EnC CPs, is a very important Regional High-Level Group (HLG) with the mandate to coordinate efforts aimed at accelerating the integration of regional electricity (and gas) markets. Its primary objective is to provide political support and direction to facilitate energy infrastructure development and regulatory improvements. With regard to new electricity grid interconnection projects, the role of *CESEC HLG* which meets regularly at Ministerial Level is to monitor the implementation of existing and to identify possible new priority projects. In line with the “*Action Plan for Grids*”, concerted efforts are now directed towards the streamlining of permitting procedures to expedite related infrastructure development and more efficient use of existing infrastructure. At its latest *Ministerial Meeting in Athens on January 19 2024*, the *CESEC HLG* welcomed the progress in the implementation of electricity infrastructure priority projects as well as market coupling initiatives laid out in its previous Action Plan, which allow the evolution of a larger and better interconnected regional electricity market and support the integration of a growing share of renewable electricity into the grid. In a context in which renewables integration is on the rise in the CESEC Region, interconnected grids will enable the transfer of electricity from regions with excess clean electricity production (from wind or solar) to regions in which there could be higher demand or lower generation capacity, such as the WB Region.

A typical example of a region which can serve in the future the growing demand for green electricity in the WB is the “Eastern Mediterranean and Black Sea Region”, which, according to ENTSO-E’s recent “*Offshore Network Development Plan for South and East Offshore Grids*” (ONDP) “*has great potential for producing offshore wind energy, which would considerably advance Europe’s ambitions for renewable energy*”, adding up to 27 GW offshore RES until 2050. This Region possesses strong wind potential and new offshore wind farms can help the electricity sector meet 2050 targets and become a zero-emission industry both in SEE region and the EU as a whole. According to ENTSO-E, energy transmission infrastructure totaling 8.7, 19.2 and 28.3 GW in 2030, 2040 and 2050 will be required, along with needed investments that could reach the amount of 15 billion euros by 2050²⁶. In this respect, important pan-European electricity transmission projects that are planned to connect the power systems from Eastern Mediterranean and Black Sea Regions with WB6 countries are already under way or planned for the future and are periodically assessed in the context of ENTSO-E’s biennial TYNDP²⁷.

Conclusion

In the Joint EU-US Statement adopted on March 15 2024, following the 11th “*EU-US Energy Council*”, in the Chapter “*Energy Security, Transition, and Reforms in Ukraine, the Republic of Moldova, and the Western Balkans*” it is mentioned that: “*The Council reaffirmed that both sides intend to deepen cooperation to support regional integration and energy sector investments to achieve climate neutrality in the Western Balkans, including by supporting decarbonisation efforts and phasing out their dependency on coal and Russian natural gas and oil imports as soon as possible. The European Union and the United States continue to promote transparent, integrated, and competitive energy markets in the Western Balkans, in line with EU enlargement policy, as well as with the climate and energy objectives and obligations under the Energy Community Treaty*”²⁸. This particular point summarizes in a few words the mainstream approach of the two Transatlantic partners towards WB Region’s energy future against the backdrop of geopolitical turmoil and climate crisis. As this Article tried to demonstrate by presenting the latest developments with regard to various initiatives supporting WB’s integration into the Single European Market for electricity, under the new circumstances the EU Institutions and the US Government (through USAID’s renewed commitment to WB’s energy security) have formed a joint partnership and are indeed combining efforts to create a necessary “**Energy Bridge**” aiming at supporting regional energy cooperation, electricity market integration and

²⁶ Link: [<https://www.entsoe.eu/outlooks/offshore-hub/tyndp-ondp/>]

²⁷ TYNDP 2024 latest interactive map of projects can be accessed here: [<https://tyndp2024.entsoe.eu/projects-map>].

²⁸ Link: [https://ec.europa.eu/commission/presscorner/detail/et/statement_24_1516].

energy sector investments in this Region, as its countries are moving towards EU membership. “Electrification” of this Region is of paramount importance to both partners, since it is historically the Region in Europe most “vulnerable” to reliance on fossil-fuel sources and supplies and to permeability of its energy sector to external political pressure. “Electrification” of WB translates into market liberalization and coupling, further penetration of RES into their power sector and grids integration to the European continental electricity system and synchronous area. As it was demonstrated, the approaches to further “electrification” of WB by the two Transatlantic partners are not identical, with the US side prioritizing “energy security” and “critical infrastructure protection” and the EU side prioritizing “green energy transition” and “market design”. Nevertheless, both serve the same goal: Integration of WB6 countries’ Electricity Markets into the Single European Market for electricity. This partnership promotes, in the longer term, the greater geopolitical purpose of gradually integrating, in infrastructural, sociopolitical and market terms, the “*Peripheral Energy Region*” of WB6 countries into a “*Centre of gravity*” - the *European continental electricity system and market* - thus laying the foundations for the formation of a “*network community*” marked by a “*common electricity destiny*”.

The Energy Community Process tasked with integrating this Region into the EU internal energy market, so far is characterized by a “gap” between formal adoption of rules and their effective implementation (e.g. transposition of EU legislation from EnC CPs). USAID’s assistance helps to “bridge” this gap, by partnering with EU countries and the private sector to support WB Region’s path to a more reliable and affordable energy for businesses and consumers and to facilitate its integration with regional and global energy markets. In this respect, the US Government reserves a special role for Greece in creating this “Energy Bridge”, which takes the following forms: 1) building on the expertise of the Greek NRA and PX in the fields of electricity market operation, transparency and supervision, 2) accelerating the integration / coupling of electricity markets in this Region with the electricity market of Greece, based on the latter’s experience in launching three power markets in 2020 and coupling with the markets of Italy and Bulgaria and 3) promoting the necessary investments to implement the cross-border electricity interconnections that will decongest the Western Balkans grid, boost regional electricity trade and integrate green electricity produced in the Eastern Mediterranean Region into WB’s energy mix.

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CONFLICTOGENICITY OF THE GLOBAL ENERGY TRANSITION AND THE CHALLENGES FACING THE EU

Yanko Yanakiev, PhD

State of the energy transition

In our times and present existence, humanity is confronted with a number of global problems caused by its irrational activities, which destroy sensitive coevolutionary²⁹ relations with nature. In order to secure his future, man must not only modify the biosphere, adapting it to his needs, but also modify himself, adapting to the objective demands of nature.

Currently, there is a widespread attitude that the world has become more uncertain, more undefined in its specifics, especially when it comes to the global energy transition³⁰. Two factors contribute to its unpredictability and hinder the planning of risk factors leading to the destabilisation of the energy transition: reflexivity and non-linear dynamics³¹. Reflexivity is related to our thinking, which actively influences events and is part of social reality. Thinking is both a passive reflection of the reality we want to understand and an active ingredient in shaping the events in which we participate. The second reason for unpredictability is the non-linear dynamics of complex systems, which makes it virtually impossible to program the trends of current social development in a rigorous way.

The behaviour of modern human society implies a multitude of possible choices and a limited horizon of predictability. Nonlinearity presumes the openness of history and different versions of the future. In the context of the global energy transition, the world community today is moving towards a state of increasing dynamic disequilibrium, the outcome of which is difficult to predict. The trajectory of the energy transition continues to be upward, albeit at a slower pace, in an environment of global economic instability, geopolitical tensions in many regions of the world, and the continued disruption of the

²⁹ Coevolution, a term used to denote the mechanism of mutually conditioned changes of the elements constituting the developing whole of the system.

³⁰ The energy transition is a natural, long-term, multidimensional transformation process, whereby one or more energy resources are displaced and new ones are more widely used under the influence of scientific and technological progress and the complex development of new technologies. As a result, profound and fundamental changes are taking place in the course of industrial transformation of the whole society and changes in the whole social system, in a wide range of different fields in industry, technology, economy and politics. See also Yanakiev, Y., *Energy Transition – Geopolitics and Energy diplomacy*, S., University for National and World Economy, 2022., p. 56.

³¹ Dimitrov, D., *Synergetics paradigm of the national security*, S., Stopanstvo, 2002.

immediate pressures of the first global energy crisis since the COVID-19 pandemic³².

The energy transition is widely identified and even fetishized with the so-called “green transition” and with clichés such as the phase-out of carbon fuels and their replacement by renewable energy sources (RES). In reality, such a perception and treatment of the energy transition is too superficial, simplistic, fragmented and straightforward, as it does not only have energy, technology and climate dimensions.

Developments over the last three years, along with problems facing economic growth, high levels of government debt and interest rates, significant inflation, supply chain issues, the negative impact on energy transition and climate goals have increased demands for energy security. The problems of energy security, energy accessibility and securing energy supplies have become more pressing as a result of the Russian-Ukrainian war and the risks of expanding geopolitical tensions in the Middle East.

The world is currently significantly off track to meet the Paris Agreement targets, with the gap between what is being done and what is required increasing every year³³. The energy transition faces both short-term difficulties and long-term challenges, arising from complex and systemic transformation issues. Expectations of a linear global energy transition following a universal recipe and prescriptions towards a carbon neutral economy are currently unrealistic. The energy transition has proven to be far more complex, and its perception, understandings and approaches need to be updated in order not to lose touch with economic history and reality. We need more of a sense of being pragmatic and realistic. We need a new vision that views the global energy transition as a multidimensional process, taking place at different speeds, at different times, involving multiple types of fuels, energy sources and technologies³⁴. Each country has its own specifics and unique socio-economic characteristics that differ from other countries in starting positions, goals, approaches, priorities, strategies, policies and with different roadmaps in the energy transition process. This warrants a rethinking of the global energy transition as it is a function of the multiple specific and individual energy transitions that are unfolding around the world by each individual

³² Yanakiev, Y., The impact of the energy transition and the global energy crisis on EU technology leadership policy in Energy and Climate Diplomacy 2023, Diplomatic Institute Ministry of Foreign Affairs of the Republic of Bulgaria, p. 85.

³³ IRENA - World_energy_transitions_outlook_2023, https://mc-cd8320d4-36a1-40ac-83cc-3389-cdn-endpoint.azureedge.net/-/media/Files/IRENA/Agency/Publication/2023/Jun/IRENA_World_energy_transitions_outlook_2023.pdf?rev=db3ca01ecb4a4ef8accb31d017934e97

³⁴ Yergin, D., The return of energy security, <https://www.spglobal.com/commodityinsights/en/market-insights/blogs/natural-gas/return-of-energy-security-natural-gas-decarbonization-daniel-yergin>

country. Linear thinking, the perception of the global energy transition as a one-way street and extrapolating past trends into the future, is therefore misleading and damaging, given that multiple factors increase the ambiguity and uncertainty of the processes at hand.

Conflictogenicity of the energy transition

In the current global crisis, when many parameters of order are disappearing, there is a significant fragmentation in the perception of the world. Further, peoplesuffer from an inability to understand the connections and interactions between things. In this context, an important feature of the energy transition is its conflictogenicity: it generates multiple conflicts, delineates a number of conflict situations and conflict zones, reveals new conflict factors, and creates an environment with significant conflict potential.

The transition of a system from one steady state to another is associated with a violation of the parameters of order and leads to a change in the relationships between its elements and relationships, accompanied by multiple contradictions and conflicts, to a new qualitative state that guarantees its normal functioning. In conflicts the unity of two processes is synthesised - the destruction and the creation of the system. They intensively absorb processes and form the imbalance and instability, and through them the destruction of the old order of the system is formed. Conflict is formed in the essence of the structure of the nonlinear system, woven by an inexhaustible chaotic diversity of conflicting processes, interests and goals between the elements of the structure - states, governments, economic, political and social entities. Transformations arise from the very nature of the energy transition, which is a multidimensional, complex, non-linear, undetermined, uncertain, and conflict-generating process that is accompanied by multiple contradictions, conflicts, conflict situations, and conflict zones. However, the causality of conflicts is determined not only by the clash of interests but also by the clash of factors. The area of disagreement is the essence and core of conflicts. In this area, the subject and the object of the conflicts emerge clearly or not so obviously³⁵.

The conflictual nature of the energy transition is manifested in the complexity of its nature and as a result of multiple interactions and conflicts at different levels and scales, between exogenous factors, institutions, economic and political entities, social agents regarding the use and application of new technologies and innovations, concepts, policies, etc. Conflictogenicity is a set of tensions in different spheres of the social system related to distinct

³⁵ Ivanov, I., Adapted conflict resolution model in Business Organizations. *Trakia Journal of Science*, Vol. 17, Suppl. 1, 2019, doi:10.15547/tjs.2019.s.01.087; (pp. 548-554). ISSN 1313-7069 (print); ISSN 1313-3551 (online). Available at: <http://tru.unisz.bg/tsj/Volume%2017,%202019,%20Supplement%201,%20Series%20Social%20Sciences/3/za%20pe4at/87.pdf>

and competing, conflicting and even mutually exclusive goals of a different set of energy transitions and the associated radical changes in the energy, economic and social system.

Thus, the conflict potential of the energy transition is a system of objective circumstances and subjective reflections, which represents an intermediate link between a stable state of energy and social structures and the unfolding of conflicts as a result of the changes generated by transformational processes. It creates a multidimensional and synergetic environment of conflict, conflict situations and zones, constantly varying in time and space and having different severity and intensity of manifestation.

Identification and understanding of the conflicts associated with the global energy transition are essential to address the challenges it faces. The analysis of the conflict-generating environment, both of factors and of areas of increasing conflict potential, can show the conditions and premises for the emergence of severe contradictions that can lead to conflicts whose non-resolution threatens the well-being of individual countries or have a greater impact, even on a global scale.

Critical conflict situations and areas

The energy transition is now entering a new bifurcational era³⁶ that traditional analytical frameworks struggle to adequately describe. The aim is to “grasp” the small causes in order to reveal their large consequences. We are entering uncharted territory, as the energy transition will have profound and diverse conflict-generating effects around the world. The causes of conflict must be sought in the endless variety of conflicting energy transition processes and interests between elements of the global energy system and economy. In parallel, the multiple points of conflict generated by the global energy transition result from the diversity of political, economic, financial, technological and social approaches, as well as from different national priorities.

Without claiming to be exhaustive, from the multidimensional system of conflicts of the global energy transition, we will focus on a few of the critical conflict situations and areas that are central to the stage at which this civilizational transformation is taking place: the energy trilemma and energy security, fossil fuels versus renewables, differences in policies and approaches to energy transition, and decarbonization between the Global South and the Global North.

³⁶ Bifurcation – a state of the system near which the laws of large numbers cease to operate, where a small fluctuation can serve as the beginning of the evolution of the system in a new direction. Bifurcation is a state of fundamental indeterminacy of the ways of further development of the system. A bifurcation point is the fork in the paths of evolution. Bifurcation is a law of the development of each open system.

Conflicts along the energy transition-energy security axis

As a consequence of the growing geopolitical tensions and geo-economic competition in the world, the thesis of neglecting climate and energy transition policies in terms of energy security is increasingly being put forward. This was also in response to ongoing policy discussions to reduce fossil fuel energy supplies and redefine oil and gas-focused investments to meet climate change targets. However, less attention is being paid to demand, even though climate change is primarily a consumption-based issue, and more attention needs to be focused on demand. This is a major set of contradictions and conflicts that directly affect the pace of the energy transition, the dynamics of the global economy and generate problems related to the social cost of the energy transition and the achievement of climate targets.

The eroding world order, energy security and climate change are deeply intertwined. The energy transition is creating huge and growing tensions between the imperatives of energy security, affordability and sustainability³⁷.

We live in a world that requires more energy with fewer emissions, which challenges the foundations of the economy and social development. The last two years have provided a number of warnings of what an asymmetric imbalance between energy transition and energy security can bring to humanity: price shocks, energy shortages, disruptions, competition for supply, hostilities, divisions and conflicts, leading to new cycles of cumulative and mutually generated crises. At the same time, global trends and developments have highlighted the need for a more diversified energy supply, and that energy transition and climate goals are impossible without ensuring energy security. The need and reality of energy security cannot be ignored, just as the energy transition cannot be forgotten, because the realities of climate change force humanity to deal with the environmental consequences and realities of transition.

Transforming the global energy mix into one that can meet demand safely, securely and reliably will require balancing short-term demand growth with energy transition objectives. Downplaying energy security or ignoring its importance is too risky, as it could lead to conflicts with climate policies, climate targets not being met, generating new conflicts and crises. Energy security and energy transition go hand in hand, with maintaining energy security an essential concern in the energy transition. Additional risks for a possible rupture between energy transition and climate policies on the one

³⁷ Yanakiev, Y., *Energy Transition – Geopolitics and Energy diplomacy*, S., University for National and World Economy, 2022., p. 19. See also Yanakiev, Y., *The impact of the energy transition and the global energy crisis on EU technology leadership policy in Energy and Climate Diplomacy 2023*, Diplomatic Institute Ministry of Foreign Affairs of the Republic of Bulgaria, p. 88.

hand, and energy security on the other, include not only disruptions and conflicts, but also future geopolitical and domestic political cataclysms³⁸.

Conflict between fossil fuels and RES

One of the central conflicts in the energy transition is the clash between the fossil fuel industry and the emerging renewable energy sector. The fossil fuel industry, because it is deeply embedded in the global economy, often resists the growth of renewable energy because of fears of losing market share and investment. This conflict stems from economic interests and the need for policy changes to support renewable energy growth.

The actions and strategies of large energy corporations play a central role in shaping the trajectory of the energy transition. Executives of leading oil and gas companies are openly calling for a rethinking of the energy transition and caution in rushing the world to abandon oil and the “fantasy” of phasing out oil and gas rather than investing adequately with them³⁹. Until recently, big oil companies have been reluctant to keep quiet when governments and activists have called on them to accelerate the transition from their products to alternative energy sources. Now this appears to be changing radically, especially after the major diplomatic breakthrough at COP 28 in Dubai in December 2023, with the final text of an agreement, which was backed by representatives of almost 200 countries, including a “transition” away from fossil fuels, working “towards a phase-down” of coal without refining, and a tripling of renewable energy capacity by 2030.⁴⁰ The positioning in the energy transition by oil and gas companies is not just a matter of decarbonising the value chain and diversifying into low-carbon technologies. These companies need to ensure that their portfolios and balance sheets can withstand the market volatility that will inevitably be part of the transition. Their aim is to reach a position where they can profit at the low point of the business cycle as well as at the high.

Humanity is at too early of a stage in the current energy transition to ignore fossil fuels so sharply from the global energy mix. The energy security balances of many countries could be disrupted as uncertainty and binding climate policies are likely to erode the capital base of critical electricity generating assets. The climate change-driven transition to a carbon-free economy and energy is essential, but the costs are likely to outweigh the benefits in the short term, financially harming taxpayers and consumers without taking away from the wealth of oil and gas companies.

³⁸ Yergin, D., The return of energy security, <https://www.spglobal.com/en/research-insights/featured/special-editorial/look-forward/the-return-of-energy-security>

³⁹ Keynote speech by Amin-h-Nasser, Ceraweek 2024, <https://www.aramco.com/en/news-media/speeches/2024/ceraweek-keynote-speech-by-amin-h-nasser>; <https://ceraweek.com/index.html>; <https://www.cnbc.com/ceraweek/?qsearchterm=CERA%202024>

⁴⁰ https://unfccc.int/sites/default/files/resource/Summary_GCA_COP28.pdf, <https://www.cop28.com/en/cop28-declaration-on-climate-relief-recovery-and-peace>.

The energy transition is not a linear progression from reliance on fossil fuels to increasing adoption of renewables and carbon sequestration. Accelerating the energy transition should not create significant imbalances in the supply and demand of currently used energy resources. Understandings of the energy transition should not be limited to their direct replacement or substitution by production technologies, which can be achieved through the deployment of certain innovations, investments or the implementation of targeted policies. It is illusory to argue that hydrocarbons can be completely excluded from consumption and the primary energy mix between now and 2040-2050.

Conflicts over energy transition and decarbonisation between the Global South and the Global North⁴¹

The Global South has emerged as a group of countries that wish to have greater influence in global governance, including the energy transition. Currently, there are escalating tensions and conflicts between the Global North and Global South, which are the result of different visions of energy transition and economic decarbonisation, different approaches to ensuring energy security, and different agendas in economic and social development. Another conflicting issue that arises relates to whether it is fair and feasible for developed Western nations, which have developed their economies for over a century on the basis of affordable coal, oil and natural gas, to now use international organisations to implement mandates and other policies that effectively deprive developing nations of the ability to do the same. This tension between the Global North and the Global South is an extremely conflicting point, which is compounded by the fact that the economies of the Global South are driven by a growing demand for energy and their governments do not feel obliged to sacrifice their own economic development to accommodate the desires of the West. Depending on their access to domestic and imported energy resources, financial needs and geography, many of these countries need access to carbon fuels to raise

⁴¹ Global North and Global South are terms that denote a method of grouping countries based on their defining characteristics with regard to socioeconomics and politics. According to the United Nations Conference on Trade and Development (UNCTAD <https://unctadstat.unctad.org/EN/Classifications.html>), the Global South broadly comprises Africa, Latin America and the Caribbean, Asia (excluding Israel, Japan, and South Korea), and Oceania (excluding Australia and New Zealand). Most of the Global South's countries are commonly identified as lacking in their standard of living, which includes having lower incomes, high levels of poverty, high population growth rates, inadequate housing, limited educational opportunities, and deficient health systems, among other issues. Opposite to the Global South is the Global North, which the UNCTAD describes as broadly comprising Northern America and Europe, Israel, Japan, South Korea, Australia, and New Zealand. As such, the two terms do not refer to the Northern Hemisphere or the Southern Hemisphere, as many of the Global South's countries are geographically located in the former and, similarly, a number of the Global North's countries are geographically located in the latter.

their living standards before their emissions trajectories change⁴². This is the key reason why Global South countries, whose CO2 emissions are more than half of global emissions, have net zero targets that do not match those of Global North countries targeting 2050: China's target is 2060, Indonesia's is 2060, Nigeria's is 2060, India's is 2070.

While in the Global North climate change and energy transition are high on the political agenda, in the Global South this priority coexists with other critically important priorities such as boosting economic growth, reducing poverty and improving health. In the developing world, energy transition is seen as a shift from the use of fuels such as wood and waste to oil and natural gas. It is important to recognise their economic and political dependence on domestic fossil fuel reserves. The main sources of revenue for many countries in the Global South are available coal, oil and natural gas, which serve as critical pillars for ensuring domestic security of supply. These resources are vital for financing government budgets and supporting key social programs. The energy sector is typically one of the largest direct and indirect employers in this region. This is one of the significant reasons why governments in the Global South cannot afford a rapid transition away from fossil fuels, on which their budgets depend, without viable alternative sources of revenue. Energy companies in the Global South face the significant challenge of developing domestic carbon-based energy resources to meet their countries' growing affordable energy needs, while developed countries push to decarbonise the global energy system. For the developing world, the gap between economic aspirations and access to resources, capital, and technology, fuels a North-South divide that requires a multidimensional energy transition that reflects national resources and incomes.

Climate policies and investments in the Global North alone are not enough to address climate change globally. Any effective solution will need to engage the developing economies of the Global South. Developing economies are indispensable partners in tackling climate change, given their vulnerability to its impacts and their potential for emission reductions and sustainable development. Cooperation between the Global North and the Global South on technology, financing and building low-carbon energy capacity will be critical to reducing emissions and addressing climate change.

Conflicts and competition among Great Powers in the transition to a low-carbon industrial policy for the energy transition

The conflictogenicity of the energy transition is evidently manifested in the strategic competition between the Great Powers in the economic,

⁴² Yergin, D., *The New Map: Energy, Climate, and the Clash of Nations*, Penguin Press, 2020.

technological and political fields. In a rapidly changing world where the economies of leading nations are increasingly interconnected, geoeconomics is a key weapon among rivals. Cutting-edge technologies are creating new arenas for competition where international governance structures have not yet emerged and traditional security concepts are inadequate.

Old problems and conflicts of industrial policy are re-emerging, but with new levels of complexity as a result of the conflictogenicity of the global energy transition. In a globalised world grappling with the impacts of climate change, industrial policy must address multiple goals, including global decarbonisation, a globally competitive economy and value creation, social security and strategic autonomy. This presents policymakers with a challenging conflict-generating trilemma: how to combine decarbonisation with economic growth – social stability and global competitiveness, while strengthening sustainability and security of supply?

Industrial policy is becoming relevant as a number of governments around the world increase spending in an attempt to achieve a diverse set of policy goals by directly subsidising and expanding certain economic sectors over others. The motivations for this set of new costs vary widely. Industrial policy is presented as an essential tool and “panacea” for geopolitical and societal “diseases” aimed at strategic competition, creating the jobs of the future and combating climate change. Such targeted approaches and economic measures build local clean energy industries, increase the security and resilience of supply chains, and create trade tensions and risks of higher costs, with resulting conflicts. In the near future, political elites will face a difficult balancing act as they seek to expand access to cheap and clean energy while stimulating their own economies.

The role of the state is growing and is no longer perceived as secondary to markets. Global superpowers continue to increase stimulus packages for the deployment and scaling of “clean technologies”. Industrial policies incentivizing or mandating local production and supply chains are increasingly part of these measures as policymakers seek to debunk China’s hitherto dominant role in these industries. Currently, the US, EU and other countries are also moving towards a more centralised model in their industrial policies, which are aimed at protecting the environment, creating jobs and competing with China. But this mix of policy goals creates the conditions for a number of new contradictions and conflicts, due to the lack of a strategy for what industrial policy should achieve.

With growing problems in terms of economic growth, the differences in the national energy transition strategies of the world’s leading economic centres – the US, China and the EU – are clearly emerging.

Thus, over the past two years, **the US** has positioned itself as a leader in setting global decarbonization and demethanisation agendas. A federal government and industry regulators have pragmatically given businesses the opportunity to respond on their own for an accelerated transition to a new energy system dominated by low-emission sources, providing the latter with direct government support and tax benefits estimated at almost \$2 trillion US dollars until 2030. In parallel, the US established an international task force⁴³ to develop a system for measuring, monitoring, reporting and verifying greenhouse gas emissions that would provide comparable and reliable information to natural gas market participants. As a world leader in innovation, the US benefits from well-functioning synergies between world-class research in universities and businesses, a public sector that drives innovation motivated by security concerns and a strong appetite for venture finance.

In **China**, the climate agenda has traditionally been subordinated to the task of ensuring high rates of economic growth. As the current economic model of the PRC creates more and more disruptions, the problems of reducing the absolute volumes of greenhouse gas emissions are postponed until after 2030. The growth of Chinese companies is a function of government funding. By choosing the industries and companies it believes will spur economic growth, Beijing intervenes in free foreign markets to achieve large-scale production at low prices. It remains to be seen whether such a model provides a sustainable global advantage in the long term, given that China has captured industries of the future, especially those needed to drive the energy transition.

The EU remains the ideological leader of the global energy transition. Despite continuing uncertainty and concerns about the 2021-2022 energy crisis, as well as signs of deindustrialisation, the EC and a number of leading European countries are continuing their course towards radical decarbonisation and demethanisation. Tasked with implementing the Green Deal, the EC believes that the best and most effective response to the energy crisis is to speed up the energy transition by building solar and wind power generation capacity even faster. From 01.10. 2023 Carbon Border Adjustment Mechanism (CBAM)⁴⁴ entered a transitional test phase that will last until the end of 2025, and from 2026 it will begin to function fully. Implementation of CBAM in its current form will not only create economic problems for China, Russia, Great Britain and Norway, but will also negatively affect other countries⁴⁵.

⁴³ https://www.energy.gov/sites/default/files/2023-11/MMRVFramework_PublicAnnouncement_15Nov2023.pdf. The group consists of Australia, Brazil, Canada, Colombia, East Mediterranean Gas Forum (Observer), European Commission, France, Germany, Italy, Japan, Norway, Republic of Korea, United Kingdom, USA

⁴⁴ https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

⁴⁵ Albania, Bosnia and Herzegovina, North Macedonia, Serbia, Montenegro, Zimbabwe, Mozambique. Moldova and Ukraine and others.

In the medium term, full deglobalization is unlikely, but industrial policy is increasingly evident in strategies related to the promotion of re-“alliance pull” (redirecting trade to countries that share the same values as suppliers) and local supply chain supplies for the technologies needed for decarbonisation.

Conflicts between the EU and the US due to different approaches to climate policy

The looming conflicts between the allies stem from their different approaches to climate policy. At the heart of the EU’s climate strategy is the Emissions Trading System (ETS)⁴⁶ and Carbon Border Adjustment Mechanism (CBAM) (which is currently in a transition phase) that will effectively apply the ETS carbon price to imports.

In the US Inflation Reduction Act of 2022 (IRA)⁴⁷ and The Infrastructure Investment and Jobs Act (IIJA)⁴⁸ and other measures, reflect a subsidy-focused strategy to achieve the country’s climate goals. In line with this strategy, the Biden administration has proposed a Global Agreement on Sustainable Steel and Aluminum (GASSA)⁴⁹, a “climate club” of countries committed to the production of low-carbon industrial products in order to avoid their overproduction and the application of punitive tariffs on “carbon” imports from non-members. Rather, the US and the EU are trying to create a new trade paradigm, a new global agreement. The vision for GASSA is that members would impose common emissions-based tariffs embedded in carbon-intensive imports that would replace both CBAM and the Trump-era steel and aluminium tariffs. The proposed agreement reflects the reality that the US cannot use a carbon-based tariff system like the EU’s CBAM because opponents in Congress have blocked the implementation of a national price on carbon emissions.

After more than a year of negotiations between EU and US officials on the

⁴⁶ https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en

⁴⁷ H.R.5376-Inflation Reduction Act of 2022, <https://www.congress.gov/bill/117th-congress/house-bill/5376/text>

⁴⁸ <https://www.congress.gov/bill/117th-congress/house-bill/3684>

⁴⁹ The Global Arrangement on Sustainable Steel and Aluminum (alternative spelling Aluminium, abbreviated as GSA or GASA, also called Green Steel Club) is a proposed joint tariff zone of countries imposing import tariffs on aluminium and steel from “non-market economies” such as China. The Global Arrangement would eliminate the chance of reinstating Trump-era tariffs on steel and aluminium. In 2021, the EU and US agreed to remove the US tariffs on aluminium and steel for specific quantities of aluminium and steel that were entirely manufactured within the EU, while they pursued a longer-term trade agreement. The tariffs, imposed by former President Donald Trump under Section 232 of the Cold-War Trade Expansion Act in 2018, targeted industries deemed crucial for national defence, with a 25 percent tariff on steel and a 10 percent tariff on aluminium. The World Trade Organization (WTO) ruled against these tariffs. The EU retaliated and imposed tariffs on American goods, such as Harley-Davidson motorcycles and bourbon whiskey. The Global Arrangement would likely break WTO rules.

tariffs, coupled with IRA provisions that favour US producers, in late 2023, the Biden administration announced it would extend partial exemptions from tariffs on EU-made steel and aluminium for another two years, signalling a temporary suspension of negotiations. Given the upcoming elections in 2024, the pause in negotiations is understandable. Neither side is willing to risk a difficult and possibly unpopular compromise. Solving these problems is effectively postponed until next year. Both the CBAM and full Section 232 tariffs take effect in early 2026, leaving just a year to find a compromise.

Reaching a deal is imperative not only to avoid a transatlantic trade war, but also to prevent a backsliding on US and EU climate policies that could have serious global consequences. The new transatlantic climate club could become the basis for multilateral cooperation on a wider range of internationally traded carbon-intensive products. A lack of cooperation could accelerate the global fragmentation of clean energy markets, and China would continue to dominate the supply chains of these markets.

Conflictogenic aspects in EU policies related to the achievement of climate neutrality goals

The EU remains one of the ambitious leaders in the energy transition with legally binding targets. The EU has doubled its net zero commitments, and support for key energy transition technologies is being stepped up. The strategies and progress of individual member states differ, and they are collectively lagging behind the pace needed to achieve net zero by 2050. The events of the past four years have shifted the focus from carbon neutrality goals to energy security and economic stability. Since 2020, the economic policy of the EU has been characterised by a significant increase and intervention of the state in the economy. As a result, the EU has revisited the old debate about the extent to which governments should intervene in their economies to prevent or manage disruptions in the supply of critical products such as vaccines during a pandemic, natural gas during the global energy crisis, chips during digital transformation or critical raw materials during the energy transition.

In the medium term, one of the leading priorities for the leadership of the European Commission (EC) is expected to be economic security, by using the concept of industrial policy to promote sectors and companies that are considered strategic. Achieving acceptable levels of economic security and economic growth implies achieving two goals:

- the first is “risk reduction”. Given the increasing fragmentation of the global economy, optimising one’s own production based only on growth and profit maximisation is not rational. To ensure business continuity, companies

must optimise their supply chains while diversifying and increasing their resilience. This is imperative after the huge energy shock experienced and the subsequent emergency diversification of energy sources, as well as the need to manage other dependencies, especially critical raw materials and rare earth elements, which are crucial for the EU's energy transition.

- the second objective is to achieve scale, which is much more difficult to achieve as it is linked to the economic growth model of the EU. The EU currently has an incomplete market for goods and services, a fragmented market for banking services and a traditional capital market, making it necessary to identify strategic industries that are suitable for stimulating economic growth. All this contradicts the philosophy of the EU and the previous policy of the EC for open and free markets.

An important step to create the legislative framework regarding the EU policy to increase the sustainability of supply directly related to the energy transition industries is related to the adoption of Critical Raw Materials Act (CRMA)⁵⁰ and the Net-Zero Industry Act (NZIA)⁵¹. CRMA is an attempt to address the risk of supply disruptions in critical raw materials, primarily by increasing their domestic production, refining and recycling. The Act includes provisions on supply chain monitoring, warehousing and improving the recyclability of CRM. Its implementation, while important, will not make the EU self-sufficient in critical raw materials. The law outlines an international strategy to diversify the EU's imports of critical raw materials and strengthen its global partnerships with emerging markets and developing economies, as well as a "critical raw materials club". NZIA aims to address disruption risks in the supply of clean technologies by: identifying net-zero technologies that are considered strategic; setting a common headline target to reach a strategic generation capacity for net-zero technologies of at least 40% of the EU's annual needs by 2030. This will accelerate progress towards the EU's 2030 climate and energy targets and the transition to climate neutrality by 2050. It will also increase the competitiveness of EU industry, create quality jobs and support the EU's efforts to become energy independent.

⁵⁰ <https://www.consilium.europa.eu/en/press/press-releases/2024/03/18/strategic-autonomy-council-gives-its-final-approval-on-the-critical-raw-materials-act/>. The final text identifies two lists of materials (34 critical and 17 strategic) that are critical to the green and digital transition, as well as the defense and space industries. CRMA establishes three indicators for the annual consumption of raw materials in the EU: 10% from local extraction; 40% to be processed in the EU and 25% to come from recycled materials.

⁵¹ The European Critical Raw Materials Act, https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials/critical-raw-materials-act_en; https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/net-zero-industry-act_en. The Act addresses technologies that will significantly contribute to decarbonisation. In particular, it supports strategic net-zero technologies that are commercially available and have good potential for rapid scale-up. Such technologies strengthen the EU's industrial competitiveness and the sustainability of the energy system, while enabling a clean energy transition.

Conclusion

The established post-World War II international security order, international trade and energy systems have lost their influence. Shocks and conflicts in the international system are pervasive. Not only were the UN and the Great Powers unable to prevent the wars in Ukraine and Gaza, they also lacked a clear political vision to end them. Trade disruptions following the COVID-19 pandemic have exposed the world to trade shocks, disrupting supply chains for energy, food, metals and minerals.

The world is currently far from achieving the goals of the Paris Agreement. The negative consequences for the climate and the natural environment of the planet from the excessive use of fossil fuels are becoming more and more evident. Expectations of a linear path to a carbon-neutral economy are not justified. The energy transition faces both short-term difficulties and long-term challenges posed by complex and systemic issues related to the transformation. An important feature of the energy transition is its conflictogenicity, as it generates numerous conflicts, identifies a number of conflict situations and conflict zones, reveals new conflictogenic factors, and creates an environment with significant conflict potential.

We are witnessing an extremely complex, multi-dimensional, multi-speed and with many competing energy sources energy transition, which reflects the different realities, timelines and speeds of geographical regions, technologies, industrial strategies and policies, which generates many multidimensional and complex conflicts. The uneven pace of the energy transition in different geographies presents companies with numerous challenges related to identifying opportunities and risks, adapting to new policies and market dynamics. In practice, we are witnessing how energy problems and conflicts multiply in so many other areas.

The conflictogenicity of the energy transition is evidently manifested in the strategic competition between the Great Powers, but together with them and other countries are also moving towards a more centralised model in their industrial policies, which are aimed at environmental protection, job creation and global competition. With growing problems regarding economic growth, the differences in the national energy transition strategies of the world's leading economic centres – the US, China and the EU – are clearly emerging. In the near future, political elites will face a difficult balancing act as they seek to expand access to cheap and clean energy while stimulating their own economies.

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LEGAL STORMS AND GREEN TRANSFORMATION: NAVIGATING THE IMPACT OF CLIMATE LITIGATION ON THE ENERGY SECTOR

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Abstract

Climate change strategic litigation has become a driving force in reshaping the global energy landscape, compelling the energy sector to confront legal, economic, and environmental challenges. This article provides an overview of the (possibilities for) transformative impact of climate litigation on the energy sector, comparatively examining key legal proceedings and their consequences both in respective jurisdictions and multilaterally.

The rise of climate litigation against the energy sector reflects a growing recognition of the industry's central role in driving greenhouse gas emissions and exacerbating climate change. Landmark cases, such as the Urgenda case in the Netherlands, have established legal precedents affirming the duty of governments and corporations to mitigate climate change. These rulings have shown that both governments and private entities are responsible for their (in)actions regarding the reduction of greenhouse gas (GHG) emissions or the long-term consequences of drilling, to name a few. Through climate litigation, civil organisations could hold key energy stakeholders responsible for their contributions to climate disruption, seek accountability for environmental harms and ultimately reshape the trajectory of energy and climate policies.

This article first examines the most prominent legal proceedings against governments and private companies from the energy sector from different parts of the world. Then, the authors examine the impact of these proceedings on national energy legislation and policy, including whether there were any specific consequences for the sued companies, including their financial viability or any adopted measures for the integration of environmental considerations in the companies' policies. Lastly, the article examines Bulgaria's state of affairs in the energy sector, providing avenues for such an approach to be implemented within the current energy policy framework, and its potential impact on the country and the Central and Eastern Europe region (CEE).

1. Introduction

The shift towards green transformation has emerged as a pivotal direction for global advancement. It encompasses the advancement of eco-friendly technologies and the establishment of legal frameworks that mandate actions such as energy conservation and reduction of greenhouse gas emissions.⁵² More precisely, litigation has been used as an instrument to slow down and disincentivize large polluters and GHG emitters, which has been described as “‘indirect’ climate litigation”, as no specific climate change claims were made, but the efforts were concentrated mainly on licensing issues or challenging the conducted Environmental Impact Assessments (EIA).⁵³ Since then, plaintiffs have started using both human rights arguments and presenting corporate actors as responsible for climate change.⁵⁴ The reason behind non-governmental organizations and civil society actors undertaking climate litigation against corporations lies in the lack of international legally-binding regulations, governing their conduct related to climate change, as opposed to States.⁵⁵ Climate litigation against non-state actors, typically gas, oil and/or electric corporations sets out to make an impact over their business activities and to oblige them to moderate them in a climate friendly way.⁵⁶

The present article focuses is on litigation efforts against both governments and private actors – in order to present a strong overview of the ongoing climate change overarching trends in order to better illustrate the possibilities for influencing the energy sector through strategic litigation. While different types of climate litigation exist, e.g. cases relying on human rights, cases challenging domestic non-enforcement of climate-related law and policies and failure to adapt to the impacts of climate change, as well as cases addressing corporate liability or actively preventing such companies from obtaining licenses and other needed documents⁵⁷, this analysis concentrates on big, novel cases that have reshaped strategic litigation and have opened

⁵² Cheba, K., Bąk, I., Szopik-Depczyńska, K., & Ioppolo, G. (2022). Directions of green transformation of the European Union countries. *Ecological Indicators*, 136, 108601. See also Aristova, E. and Lim, J., “Climate Litigation in Europe Unleashed: Catalysing Action against States and Corporations”, available at < https://www.law.ox.ac.uk/sites/default/files/2024-03/Climate%20Litigation%20in%20Europe_Catalysing%20Action%20against%20States%20and%20Corporations.pdf>, last accessed on 29.04.2024.

⁵³ Paiement, P. (2023). Reimagining the Energy Corporation: Milieudefensie and Others v Royal Dutch Shell Plc. In: Dam-de Jong, D., Amtenbrink, F. (eds) *Netherlands Yearbook of International Law 2021*. Netherlands Yearbook of International Law, vol 52. T.M.C. Asser Press, The Hague.

⁵⁴ *ibid.*

⁵⁵ Elagouz, M., Heldeweg, M., Matera, C., “Suing States for their Responsibility for Climate Change-related Damage Caused by Non-State Actors in the European Context”, 8 *Catolica Law Review* 1, January 2024, 109- 136, p. 114.

⁵⁶ *ibid.*, p. 113.

⁵⁷ UNEP, *Climate litigation more than doubles in five years, now a key tool in delivering climate justice* (2023), available at <<https://www.unep.org/news-and-stories/press-release/climate-litigation-more-doubles-five-years-now-key-tool-delivering/>>, last accessed on 29.04.2024.

the doors for further action within all European jurisdictions. The present article is divided as follow. In the first part some ground-breaking European cases are examined - these have set (and continue setting, as some of the examined cases are currently pending) important precedents. The second section presents real and tangible impact these cases have on the state policies and the dealings of the private companies involved. The third part presents a closer look on the Bulgarian climate litigation scene and the rationale behind it.

2. Overview of the growing trend of climate litigation across European jurisdictions with influence on the energy sector

In recent years climate litigation has also emerged in many countries and the most high-profile and innovative cases and decisions can currently be found in different parts of the world, particularly in Europe. These rulings have shown that both governments and private entities are responsible for their (in) actions regarding the reduction of greenhouse gas (GHG) emissions or the long-term consequences of drilling, to name a few. Through climate litigation, civil organisations could hold key energy stakeholders responsible for their contributions to climate disruption, seek accountability for environmental harms and ultimately reshape the trajectory of energy and climate policies.

Cases brought before court can seek broader societal benefits, namely a) to integrate climate standards, questions or principles into government decision-making with the dual goals of stopping specific harmful policies and projects and making climate concerns more mainstream among policymakers, b) to challenge the implementation or ambition of climate targets and policies affecting the whole of a country's economy and society (e.g. *Urgenda Foundation v. State of the Netherlands*) or c) seek to disincentivise companies from continuing with high-emitting activities by requiring changes in corporate governance and decision-making.⁵⁸

While the vast sea of climate cases covers different actors, subject matters, jurisdictions and sectors, for this article, we will examine cases specifically against governments and corporations from the energy sector. In particular, this methodology was selected with the aim to delve deeper into the specific characteristics of the present research question, namely whether strategic climate litigation has influenced the energy sector. Albeit the present article does not pretend to contain an exhaustive list of climate cases,⁵⁹ it will look into the flagship cases from different jurisdictions that might provide us with insights into the impact of the climate litigation wave over the energy sector.

⁵⁸ Setzer, J., Narulla, H., Higham, C., & Bradeen, E. (2022, December). Climate litigation in Europe. In A summary report for the European Union Forum of Judges for the Environment. The Grantham Research Institute on Climate Change and the Environment. LSE.

⁵⁹ Thankfully, our friends from the Sabin Center for Climate Change Law to Columbia University keeps such a database, available at <https://climatecasechart.com/>.

2.1. The trend-setter: *Urgenda*

The *Urgenda* case is a landmark in climate litigation history, as it was the first judgment to order a state to limit GHG emissions.⁶⁰ The application was filed in 2013 on behalf of the Urgenda Foundation and 900 Dutch citizens. The final judgment, issued in the end of 2019, upheld that the Netherlands is obliged to reduce, by the end of 2020, the emission of greenhouse gases originating from Dutch soil by at least 25% compared to the levels in 1990.⁶¹ The Court based its judgment on Arts. 2 and 8 of the ECHR, reasoning that the risk of dangerous climate change could have a severe impact on the lives and welfare of the people living in the Netherlands and formed the specific percentage on the national and international obligations the Netherlands has.⁶² Additionally, due to the nature of the proceedings, the plaintiff have the opportunity, in a case of hypothetical non-compliance by the State, to seek a financial penalty or a court order on how specifically the State has to achieve the 25% reductions.⁶³ Thankfully, the Netherlands complied with the judgment (see section 3).

The *Urgenda* case started a wave of climate litigation efforts throughout Europe. One of the cases, inspired by *Urgenda*, is within the German justice system, *Neubauer, et al. v. Germany*,⁶⁴ lodged by German youth directly before the country's Federal Constitutional Court. The applicants claimed that the commitment for reduction of GHG emissions under the Federal Climate Protection Act ("Bundesklimaschutzgesetz") is not enough to curb the increasing global temperature below 2° C.⁶⁵ The Court in its Order of 24 March 2024 declared that parts of the Federal Climate Protection Act are unconstitutional in that they fail to protect fundamental rights,⁶⁶ and ordered the legislature to work on providing better reduction targets from 2031 onward in the relevant legislation.⁶⁷

⁶⁰ Mayer, B., The Contribution of Urgenda to the Mitigation of Climate Change, *Journal of Environmental Law*, Volume 35, Issue 2, July 2023, Pages 167–184.

⁶¹ Dutch Supreme Court (Hoge Raad), *Urgenda Foundation v. the Netherlands*, Judgment of 20 December 2019, No. 19/00135, ECLI:NL:HR:2019:2006, summary of the decision.

⁶² *ibid*, 5.6; See also Lutak, O., "The Urgenda decision: The landmark Dutch climate change case", January 27, 2020, *Leiden Law Blog*, available at <<https://www.leidenlawblog.nl/articles/the-urgenda-decision-the-landmark-dutch-climate-change-case/>>, last accessed on 29.04.2024.

⁶³ Spier, J. 'The "Strongest" Climate Ruling Yet': The Dutch Supreme Court's Urgenda Judgment. *Neth Int Law Rev* 67, 319–391 (2020).

⁶⁴ BVerfG, Order of the First Senate of 24 March 2021 - *Neubauer, et al. v. Germany* - 1 BvR 2656/18 -, paras. 1-270, ECLI:DE:BVerfG:2021:rs20210324.1bvr265618.

⁶⁵ Elagouz, M. (n 4), p. 122.

⁶⁶ *Neubauer, et al. v. Germany* (n 13), para 266.

⁶⁷ *ibid*, para 268, See also *Neubauer, et al. v. Germany* in *Climate Case Chart*, available at <https://climatecasechart.com/non-us-case/neubauer-et-al-v-germany/>, last accessed on 29.04.2024.

2.2. Perseverance is key – cases of Greenpeace Nordic and Nature and Youth Norway

The case *People v Arctic Oil* (Greenpeace Nordic and Nature and Youth Norway v. Norwegian Ministry of Petroleum and Energy) was filed in 2016 by Greenpeace Nordic, challenging the issuance of petroleum production licences on the continental shelf of Norway. The application was based on the premise that using the newly issued licenses is inconsistent with the aim of keeping the global warming under 2°C in excess to pre-industrial times and that, additionally, the area where the newly licensed companies would operate is very far north and their operations could have negative effect over the ice zone.⁶⁸ The applicants used as legal basis the Norwegian Constitution and the right to a healthy and safe environment enshrined in it. The Norwegian Supreme Court rendered its judgment in 2020, stating that there is no sufficient link between the issuing of the licences and real and immediate loss risk for the people in Norway.⁶⁹ Additionally, the Court found it “uncertain whether or to which extent [issuing the licences in question] will actually lead to GHG emissions”.⁷⁰ A part of the judgment, however, indicated that EIA for combustion emissions and climate impacts must be part of the impact assessment.

The applicants did not agree with the general reasoning of this decision and subsequently filed an application before the ECtHR,⁷¹ which is currently pending.

In the meantime (in 2023), the same applicants have launched another case in Norway, the *North Sea Fields* case (Greenpeace Nordic and Nature & Youth v. Norwegian Ministry of Petroleum and Energy).⁷² These proceedings examine the plan for the development and operation of three oil and gas fields in the North Sea.⁷³ The legal grounds for the application are the Petroleum Act, the EIA Directive and the ECHR. The Court of First Instance (Oslo District Court) issued its judgment in January 2024, stating that there was in fact a violation of the Petroleum Act in that the combustion emissions and

⁶⁸ Greenpeace Nordic Ass'n v. Ministry of Petroleum and Energy (People v Arctic Oil) in Climate Case Chart, available at < <https://climatecasechart.com/non-us-case/greenpeace-nordic-assn-and-nature-youth-v-norway-ministry-of-petroleum-and-energy/>>, last accessed on 29.04.2024.

⁶⁹ Greenpeace Nordic and Nature and Youth Norway v. Norwegian Ministry of Petroleum and Energy, HR-2020-2472-P, (case no. 20-051052SIV-HRET), Supreme Court of Norway, Judgment of 22 December 2020, p. 167-168.

⁷⁰ *ibid.*, p. 168.

⁷¹ Greenpeace Nordic and Others v. Norway, Application no. 34068/21.

⁷² Greenpeace Nordic and Nature & Youth v. Norwegian Ministry of Petroleum and Energy, 23-099330TVI-TOSL/05.

⁷³ Greenpeace Nordic and Nature & Youth v. Energy Ministry (The North Sea Fields Case), in Climate Case Chart, available at < <https://climatecasechart.com/non-us-case/the-north-sea-fields-case-greenpeace-nordic-and-nature-youth-v-energy-ministry/>>, last accessed on 29.04.2024.

climate impacts must be part of the impact assessment,⁷⁴ thereby finding the approvals of all three oil and gas fields invalid.⁷⁵ The decision was appealed by the State and the appeal is currently pending.

2.3. All against one – cases against Shell

Milieudefensie et al. v. Royal Dutch Shell plc. is also a landmark case. Even though it systematically builds on the *Urgenda* case, climate change litigation as such against corporations was unprecedented until this case.⁷⁶ The Dutch NGO Milieudefensie (alongside other NGOs such as Greenpeace NL) in 2019 filed a case before the Hague District Court against Shell. According to Milieudefensie, they chose Shell as respondent to these proceedings due to Shell not actively opposing climate policies, even though the company is one of the largest polluters.⁷⁷ The plaintiffs requested the Court to adjudge and declare that Royal Dutch Shell plc. ought to reduce its CO₂ emissions by 45% by 2030 compared to 2010 levels and to zero by 2050, in line with the Paris Climate Agreement.⁷⁸ The Court rendered its judgment in 2021, ordering Shell to reduce its emissions from its entire global chain by 45% by 2030, compared to 2019 levels.⁷⁹ The Court also commented negatively on Shell's corporate strategy for energy transition.⁸⁰ This comment is particularly important, as it may induce European energy companies to reevaluate their corporate strategies around climate change.⁸¹ Additionally, the Court notably examined the UN Guiding Principles on Business and Human Rights and the OECD Guidelines on Multinational Enterprises, which, even though being "soft law" instruments, are considered authoritative and reinforce the notion that businesses have the responsibility to abide by a global standard wherever they operate, complying with both national laws and human rights regulations.⁸² This judgment is provisionally enforceable, which indicates that Shell is obliged to take measures to comply with it irrespective of the ongoing

⁷⁴ Greenpeace Nordic and Nature & Youth v. Norwegian Ministry of Petroleum and Energy, 23-099330TVI-TOSL/05, Judgment of 18 January 2024 in Oslo District Court, p. 3.5.6.

⁷⁵ Norway appeals against climate-friendly Oslo Court judgement, Greenpeace International from 31st January 2024, available at <https://www.greenpeace.org/international/press-release/65060/norway-appeal-climate-oslo-court-judgement/>, last accessed on 29.04.2024.

⁷⁶ Mayer, B. (n 9).

⁷⁷ Our climate case against Shell in Milieudefensie, available at <https://en.milieudefensie.nl/climate-case-shell/>, last accessed on 29.04.2024.

⁷⁸ Milieudefensie et al. v. Royal Dutch Shell plc. in Climate Case Chart, available at <https://climatecasechart.com/non-us-case/milieudefensie-et-al-v-royal-dutch-shell-plc/>, last accessed on 29.04.2024.

⁷⁹ Our climate case against Shell in Milieudefensie (n 26).

⁸⁰ Bevan, Al. et al., "Milieudefensie V. Shell—A Landmark Court Decision For Energy And Energy-intensive Companies" (2021), available at <https://www.shearman.com/en/perspectives/2021/06/milieudefensie-v-shell--landmark-court-decision-for-energy-companies/>, last accessed on 29.04.2024.

⁸¹ *ibid.*

⁸² Hösli, A. (2021). Milieudefensie et al. v. Shell: A Tipping Point in Climate Change Litigation against Corporations?. *Climate Law*, 11(2), 195-209.

appeal proceedings. Milieudefensie has warned Shell's Board of Directors that if they don't comply with the judgment, there will be personal liability risks towards third parties resulting from a failure to act.⁸³

In 2023 ClientEarth, as a response to, or rather continuation of, the *Milieudefensie et al. v. Royal Dutch Shell plc.* ruling filed an application in the UK against Shell's Board of Directors regarding the company's climate change risk management strategy.⁸⁴ The case was groundbreaking as it was the first attempt to hold the board of directors personally liable.⁸⁵ An additional interesting aspect of this case is that ClientEarth is actually a shareholder in Shell, so their suit is considered a derivative action, which was generally used to challenge alleged breaches of duty by the Board.⁸⁶ The alleged breach in this instance was the failure of the Board to put in place an energy transition strategy in accordance with the Paris Agreement, thus increasing the exposure to climate risks and possibly hindering its long-term commercial viability.⁸⁷ ClientEarth was striving for the Court to order Shell to adopt a strategy in line with the ruling of *Milieudefensie et al. v. Royal Dutch Shell plc.*⁸⁸ The Court, however and unfortunately, decided against ClientEarth on the basis that the plaintiff did not make out a *prima facie* case for risk mismanagement.⁸⁹

3. Consequences of climate litigation

In principle, climate litigation can be a powerful instrument to fill the compliance gap in the energy sector. Important obligations for the EU member states are posited in "hard law"; however, EU environmental law is generally characterised by compliance shortages, particularly when it comes to the energy and climate sphere. Enforceability on a member state level was foreseen to be improved by applying the new governance framework, i.e. by means of obligatory national energy and climate plans (NECPs),⁹⁰

⁸³ Milieudefensie et al. v. Royal Dutch Shell plc. in Climate Case Chart (n 27).

⁸⁴ ClientEarth v. Shell's Board of Directors, in Climate Case Chart, available at <https://climatecasechart.com/non-us-case/clientearth-v-shells-board-of-directors/>, last accessed on 29.04.2024.

⁸⁵ ClientEarth, "Our groundbreaking case against Shell's Board of Directors comes to an end", available at < <https://www.clientearth.org/latest/news/we-re-taking-legal-action-against-shell-s-board-for-mismanaging-climate-risk/>>, last accessed on 29.04.2024.

⁸⁶ *ibid.*

⁸⁷ Pablo Iglesias-Rodríguez, ClientEarth v Shell plc and the (Un)Suitability of UK Company Law and Litigation to Pursue Climate-Related Goals, *Journal of Environmental Law*, Volume 35, Issue 3, November 2023, Pages 445–454

⁸⁸ *ibid.*

⁸⁹ ClientEarth, ClientEarth v Board of Directors of Shell plc. Legal Briefing, available at < <https://www.clientearth.org/media/5dwnmofh/legal-briefing-clientearth-v-board-of-directors-of-shell.pdf/>>, last accessed on 29.04.2024.

⁹⁰ European Commission. National energy and climate plans (NECPs). Available at <https://energy.ec.europa.eu/topics/energy-strategy/national-energy-and-climate-plans-necps_en/> , last accessed on 29.04.2024.

and national long-term strategies with specific energy and climate targets (Regulation on the governance of the energy union and climate action (EU)2018/1999). Although enforceability has improved, many member states face challenges in delivering an ambitious, stakeholder-driven, and adequate framework for energy and climate targets until 2030.⁹¹ Yet, many countries are taking the plans to court, referring to issues related to NECPs.

After having examined several landmark climate cases in Europe, the most important question that needs to be asked is how does the outcome of these cases influence and shape the world after rendering their judgments. The impact of climate litigation can, generally, be divided into two categories: regulatory (direct and indirect) and financial.⁹²

The direct regulatory impact can be seen in situations where formal legal change results from the litigation.⁹³ Examples of this direct regulatory impact can be seen in the aftermath of the *Urgenda* case, when, according to statements by Urgenda itself, the Dutch Government closed coal-fired power stations, adopted a Climate Change Act and increased investments in renewable energy.⁹⁴ Another example of the direct regulatory impact is the *Neubauer, et al. v. Germany* case, as a consequence of which the Bundestag adopted an amendment in the Federal Climate Protection Act, that requires a reduction of 65% in GHGs from 1990 levels by 2030.⁹⁵ And even though there is no direct link to a specific case, the European Union has adopted the European Sustainability Reporting Standard in July 2023, which will require EU and non-EU entities to publish sustainability statements, including information about various ESG issues.⁹⁶

The indirect regulatory impact stems from the behavioural change of both public institutions and non-governmental actors, mainly due to the so-called

⁹¹ Kati Kulovesi, Sebastian Oberthür, Harro van Asselt, Annalisa Savaresi, *The European Climate Law: Strengthening EU Procedural Climate Governance?*, *Journal of Environmental Law*, Volume 36, Issue 1, March 2024, Pages 23–42.

⁹² Setzer J. *The Impacts of High-Profile Litigation against Major Fossil Fuel Companies*. In: Rodríguez-Garavito C, ed. *Litigating the Climate Emergency: How Human Rights, Courts, and Legal Mobilization Can Bolster Climate Action*. Globalization and Human Rights. Cambridge University Press; 2022:206-220; See also Preston, J. “The Influence of Climate Change Litigation on Governments and the Private Sector”, available at https://lec.nsw.gov.au/documents/speeches-and-papers/preston_influence%20of%20climate%20change%20litigation.pdf/, last accessed on 29.04.2024.

⁹³ Setzer J. (n 41).

⁹⁴ Presentation by Lucy Maxwell, “Climate litigation against national governments: breakthroughs and new frontiers”, available at <https://commission.europa.eu/system/files/2023-05/Afternoon-4-2-L-Maxwell.pdf> (last accessed on 29th April 2024).

⁹⁵ Reform of Germany’s Climate Protection Act, available at < <https://plana.earth/policy/reform-germany-climate-protection-act/>>, last accessed on 29.04.2024.

⁹⁶ A tempest of change: impact of climate-related litigation and regulation in Osler. *Legal Outlook* (December 2023), available at <https://legaloutlook.ca/a-tempest-of-change-impact-of-climate-related-litigation-and-regulation/>, last accessed on 29.04.2024.

“litigation risk”.⁹⁷ As shown by the Shell cases, corporate executives now ought to take into account litigation risk across multiple jurisdictions, which translated into balancing new oversight obligations and fiduciary duties to shareholders.⁹⁸ This means that shareholders and investors pay closer attention to the litigation and climate change risk of companies and for them to mitigate the risk of a bad investment and/ or a possible realization of the litigation risk, the ESG score is becoming an important value for European and North American companies, with companies with a higher ESG score being perceived as less vulnerable to climate-related litigation or activism.⁹⁹

Another indirect consequence of climate litigation lies within stakeholder activism, as seen in the ClientEarth’s derivative claim against Shell¹⁰⁰, which signifies a shift in the shareholder instruments used to influence more sustainable company decision-making – now instead of using the traditional methods like voting, shareholders have recourse to derivative claims and seeking the personal liability of the directors and chief executives.¹⁰¹ The “behaviour” of the company could lead to serious reputational risks, which in turn makes companies communicate differently and more cautious, especially under the risk of greenwashing.¹⁰²

On the other hand, the financial impact of climate litigation could include legal fees, fines or penalties, higher insurance costs and changes to credit ratings, and if the case is successful, awards of damages,¹⁰³ but also the companies’ overall valuations and share prices.¹⁰⁴ It was noticed that after filings and court judgments against corporations from the energy sector, there was an immediate drop in the companies’ share prices.¹⁰⁵ Climate litigation in general is observed to impact negatively the stock prices for European and North American oil and gas firms, while firms located in other jurisdictions could record slight gains.¹⁰⁶

⁹⁷ Setzer J. (n 41).

⁹⁸ Saad, A., “The impact of climate litigation on corporate governance” (2023), available at < <https://www.ecgi.global/publications/blog/the-impact-of-climate-litigation-on-corporate-governance/>>, last accessed on 29.04.2024

⁹⁹ Pablo Iglesias-Rodríguez, ClientEarth v Shell plc and the (Un)Suitability of UK Company Law and Litigation to Pursue Climate-Related Goals, *Journal of Environmental Law*, Volume 35, Issue 3, November 2023, Pages 445–454.

¹⁰⁰ ClientEarth v. Shell’s Board of Directors, in Climate Case Chart, available at <https://climatecasechart.com/non-us-case/clientearth-v-shells-board-of-directors/>>, last accessed on 29.04.2024.

¹⁰¹ *ibid.*

¹⁰² Wong, C. “Do climate lawsuits lead to action? Researchers assess their impact” (April 2024) in *Nature*, available at <https://www.nature.com/articles/d41586-024-01081-w/>, last accessed on 29.04.2024.

¹⁰³ Sato M, Gostlow G, Higham C, Setzer J, Venmans F (2023) Impacts of climate litigation on firm value. Centre for Climate Change Economics and Policy Working Paper 421/Grantham Research Institute on Climate Change and the Environment Working Paper 397. London: London School of Economics and Political Science.

¹⁰⁴ Wong, C. (n 50).

¹⁰⁵ *ibid.*

¹⁰⁶ Kolaric, S. The impact of climate litigation and activism on stock prices: the case of oil and

The main measure that appears to mitigate this negative impact is a higher ESG score.¹⁰⁷ This shows that this wave of legal actions aims to reimagine the profit, insisting that shareholder value ought to be premised on the long-term viability of the company in a carbon-neutral future.¹⁰⁸

4. The case of Bulgaria

Bulgaria is among the most coal-dependent countries in the European Union for electricity generation. As of 2023, lignite coal has remained the primary source of electricity generation (44%), while nuclear energy covers another 1/3 of the production.¹⁰⁹ Coal-fired power generation is steadily being replaced by renewable energy connected to the grid, and several changes have been made in that direction, including the approval of Territorial Just Transition Plans (TJTPs) for the three coal regions identified by the European Commission – Stara Zagora, Kyustendil and Pernik. Nevertheless, the political and social aspects of the question regarding the future of coal-fired powerplants remains open in Bulgaria. The coal-fired power plants use indigenous fuel with high sulphur concentrations and significant dust content emitted in the combustion process in the form of sulphur dioxide (SO₂), fine particulate matter (PMF), and mercury in the air, and are known to continuously violate environmental norms regarding emissions.

In the context of the EU transition to carbon-neutrality by 2050, a divergence from the green transition for Bulgaria would mean higher energy and climate security risks, linked to a high exposure to the inherent volatility of fossil fuel prices - as it was vividly revealed by the energy price crisis since August 2021, exacerbated by the Russian invasion in Ukraine.¹¹⁰ The economic feasibility of operating coal- and gas-fired power plants has been steadily declining on the back of rising fossil fuel and ETS quota prices, as well as violations of environmental norms.¹¹¹

Although there are several court cases related to coal power plants operating in violation of EU and national law, this article focuses on the recent case in relation to the renewal of the permit of TPP Maritsa-East 2. According

gas majors. Review of Managerial Science (2023).

¹⁰⁷ *ibid.*

¹⁰⁸ Paiement, P. (n 2).

¹⁰⁹ Aleksieva, R., Tcolova, K. 2023. Energy without Russia: The consequences of the Ukraine war and the EU sanctions on the energy sector in Europe. Friedrich-Ebert-Stiftung Foundation.

¹¹⁰ Vladimirov, M., Rangelova, K., Aleksieva, R., Szabo, L. and Diallo, A. Decarbonising the Bulgarian Power Sector: Resolving the Coal Phaseout – Security of Supply Conundrum. Sofia: Center for the Study of Democracy, 2023.

¹¹¹ The European Commission accused Bulgaria before the Court of Justice of the European Union of “persisting non-compliance” with hourly and daily limits values of SO₂ and harmful air pollution when coal is burned. This is the second procedure in Brussels against the country since Bulgaria was referred to the court over poor air quality for breaching limit values for particulate matter PM10.

to a decision of Administrative Court of Stara Zagora as of March 2024¹¹², the plant has been operating in violation of law since 2019, when its permit was renewed, despite the reportedly heavy pollution with sulphur dioxide nearly twice above the limit and with mercury - more than four times.

The court's decision is based on the preliminary ruling reference of the Court of the European Union (CJEU). In March 2023, the CJEU stated that the Bulgarian state had violated EU law by allowing its Maritsa East 2 thermal power plant not to comply indefinitely with air pollution limits imposed by the European Commission. In violation of European legislation, the Bulgarian state has allowed its thermal power plant to fail to comply with the European Commission's limit values for air pollution with harmful gases indefinitely. The country's Supreme Administrative Court (SAC) must take this into account when considering the case of environmental organisations against the exemption (derogation) from European rules granted by the Executive Environmental Agency. The Stara Zagora court pointed out that the plant's permit did not take into account the total impact of sulphur dioxide emissions from all industrial and domestic sources in the area, as well as important pollution data, emphasising on the environmental health risk. In doing so, the court effectively confirmed that the economic interest of coal-fired power plants cannot override public health and environmental protection.

This case is instrumental for pushing the already very delayed reforms in the Bulgarian energy sector and lack of long-term strategy for coal phaseout and green transition. The court specifically acknowledged the violation of norms on emissions and permitting as part as a parameter for the legality of climate action and classified the discrepancies in polluting as a violation of the government's obligation to ensure a just transition. It is important to highlight that this decision can be challenged by the coal plant and the Executive Environmental Agency to the Supreme Administrative Court.

Due to the sensitivity of the coal-phaseout debate in Bulgaria, such cases can further play an important role for climate litigation for two reasons. Firstly, they can provide binding legal grounds for compliance with substantive positive obligations. Substantive positive obligations usually include asking states to take legislative and/or executive action to tackle environmental degradation that affects the enjoyment of human rights or demanding the enforcement of legislation. On the other hand, such cases can be a powerful tool to demand substantive negative obligations for the government, i.e. refraining from authorising activities or adopting policies leading to environmental impacts that violate the enjoyment of human rights (e.g. *Nature and Youth and Greenpeace Norway v. the Government of Norway*).

¹¹² Decision № 918 of Administrative Court of Stara Zagora, 15.03.2024.

Bulgaria has had limited progress on the rule of law as a whole.¹¹³ Fostering the effective enforcement of such obligations can have a positive impact on the independence, quality and efficiency of the Bulgarian justice system. These are key parameters to ensure that the application and enforcement of EU law is effective and that the rule of law is upheld, guaranteeing the protection of citizens' procedural and environmental rights. Moreover, these are also essential for Bulgaria's cooperation across the EU, contributing to achieving its energy and climate targets by 2030 and 2050.

5. Conclusion

The growing wave of climate change litigation is reshaping both regulatory frameworks and financial landscapes worldwide. Through direct regulatory impacts, cases like *Urgenda* and *Neubauer, et al. v. Germany*, have driven tangible legal changes, from the closure of coal-fired power stations to the adoption of ambitious climate legislation. Moreover, the adoption of the European Sustainability Reporting Standard reflects a broader trend toward greater corporate accountability. Indirectly, litigation has spurred behavioural shifts among both public institutions and corporations, compelling a reassessment of risk and investment priorities. Shareholder activism, exemplified by cases like ClientEarth's derivative claim against Shell, highlights a growing emphasis on sustainable decision-making and corporate accountability.

Nevertheless, further research is essential to understand the full impact of these legal battles on the pursuit of broader climate governance. There is also a need for systemic changes to corporate behaviour, regulatory frameworks and public awareness to achieve meaningful progress towards global climate objectives. Ultimately, climate litigation represents a pivotal force in driving systemic change toward a more resilient and environmentally conscious future.

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WINNING THE NET-ZERO INDUSTRY GAME

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Introduction

In August 2022 the US President Joe Biden signed the Inflation Reduction Act (IRA) into law, marking it the most significant legislative action on clean energy and climate change in the American history. The IRA has to set a new front against the existential threat of climate change and to spur American innovation for lower consumer costs while driving the global clean energy economy forward.

The United States, as a global innovations and industrial leader, has decided once again to step up in the global race to supply the decarbonization of the world with the technologies and resources needed for a new industrial revolution. Since the mid 2010s, the USA has also one very important competitive advantage – the country is self-sufficient in energy terms and has restored its energy exporting role from the mid-20th century.

More or less as a follow-up, in March 2023 the European Commission proposed the Net-Zero Industry Act (NZIA), set to achieve the „Fit-for-55” benchmark to reduce EU carbon emissions by 55% by 2030 compared to 1990 levels. It was followed by a provisional agreement of the European Parliament and the Council on the Critical Raw Materials Act (CRMA) in November 2023. Both acts have to support the new green industrialization of the EU, while establishing secure and robust supply chains for critical materials.

Europe has been the global climate leader, at least in terms of policy provisions. The European Commission has been leading the efforts for a new climate accord even before the Paris Agreement, but with no specific success stories in the past ten years, especially among the G-20 countries, where about 80% of the global carbon emissions are produced. A global leader in policy, but also a leader in energy dependency, the EU has a new „trilemma” to solve – how to decarbonize the economy, while there are no traditional local energy resources left and while the new industrial revolution has been fueled by investment and consumer goods, produced elsewhere.

Europe faces additional risks stemming from the combined economic impacts of rapidly advancing technology and the influence of China. The

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French President Emmanuel Macron expressed concerns¹¹⁵ that Europe may lag behind in critical high-tech domains, ranging from clean technology to quantum computing, unless it comprehends the magnitude and immediacy of necessary actions.

Meanwhile, China has a strong incentive to retain its leadership as a global industrial powerhouse which provides the rest of the world with wind turbines, solar panels, batteries and other emerging technologies for the green transition. Policymakers in China strive „to modernize the industrial system” and to „develop new quality productive forces” and this could lead to factory capacity rise in some industries over 75% by 2030¹¹⁶.

Will China continue to be the industrial powerhouse of the world or will the balances change? How the new set of ESG standards affect the industrial production of energy transformation goods and whether or not the new Taxonomy will define financial streams to go elsewhere?

So, who will win the new „Green Arms Race”? Just like in a real-time strategy video game, the three contestants have specific super-powers. To name a few, the USA has transformed its economy under stress more than once, the EU has shown that everything could be achieved in the name of a common goal, and China has a strong hold over its economy, both public and private. These special characteristics may not be enough.

The Global Energy Security Setup

Energy security can be defined in several ways. One traditional concept is that of the European Union – based on diversification of sources, diversification of routes, and diversification of suppliers. This strategy has been applied mostly after the gas crisis of 2009. Since then, the EU has not left out of the picture its largest supplier – the Russian Federation, but has strived to secure enough alternatives, at least in order to have a better pricing negotiation position.

This strategy has been shattered in February 2022, when the start of the war in Ukraine added one more condition for the European energy equation – all three diversification goals will stay, but there should be no Russian energy in the mix. The policy was officialized through the REPowerEU plan, which also added 210 billion EUR for additional measures in the period until 2027.

¹¹⁵ The Economist (2024) Emmanuel Macron on how to rescue Europe, www.economist.com/europe/2024/05/02/how-to-rescue-europe

¹¹⁶ The Economist (2024) Xi Jinping’s misguided plan to escape economic stagnation, www.economist.com/leaders/2024/04/04/xi-jinpings-misguided-plan-to-escape-economic-stagnation

Two unusually warm consecutive winters in Europe have supported the plan, which could have gone sideways, if the temperatures were lower.

The energy security situation in the United States has been quite brighter in the past decade, mostly due to the new resources of shale gas and oil from shale formations, which have not only returned the country on a global market as an exporter but have also supported its domestic decarbonization. While heavy CO₂ pricing emerged in Europe after the adoption of the Energy and Climate Package in 2008, the US utilities managed to replace coal-based power plants with gas generators mostly without any political measures or just because there were none to stop the development of new shale gas formations.

The availability of gas and the inability to export more of it in the first years have made it abundant and cheap for local power generators and industries alike. Oil formations and their production fueled the new position of the United States as a leading global exporter, allowing it to reconfigure even some of its security positions around the world. Meanwhile the carbon emissions of the USA have dropped in 2022 about 3% below the levels in 2017 even if they are higher than the ones in 2021. In the EU the drop for the same period is about 13%. It is worth noting that the decrease in coal consumption during this period has been faster in the United States than in the European Union¹¹⁷.

China, on its turn, relied more and more on domestic energy resources – both fossil and renewable, to fuel its industrial growth and competitiveness. According to the International Energy Agency's Renewables 2023 report¹¹⁸, there was a significant leap in renewable capacity additions in 2023, primarily propelled by China's solar photovoltaic (PV) market.

While Europe, the United States, and Brazil achieved unprecedented highs in their renewable capacity expansions, China's advancement was particularly noteworthy. In 2023, China installed a solar PV capacity equivalent to the cumulative global installations in 2022.

While historically, the United States has been the driving force behind technological revolutions for the past century, the current surge in renewable energy innovation is predominantly propelled by China. Understanding this phenomenon requires viewing it through the lens of China's pivotal role. China has transitioned into what can be termed as an „electrostate“¹¹⁹, a conceptual notion suggesting a nation where a significant portion of its primary energy consumption is dedicated to electricity generation. As the Rocky Mountain Institute (RMI) claims in its recent report, China is in the lead in many of the

¹¹⁷ Energy Institute (2024) 2023 Statistical Review of World Energy (formerly BP Statistical Review of World Energy) - www.energyinst.org/statistical-review

¹¹⁸ IEA (2024) Renewables 2023, IEA, Paris, www.iea.org/reports/renewables-2023

¹¹⁹ RMI (2024) X-Change: The Race to the Top, www.rmi.org

key areas of competition. The game is not over, though – the RMI considers that the race is still at an early stage, and Europe and the United States are now back in the game, „and everything is to play for”.

The imperative of security concerns serves as a catalyst for action in the United States and Europe. The events of 2022, marked by heightened awareness of Chinese dominance in future energy technologies, particularly in the aftermath of the Russian Federation’s invasion of Ukraine, which catalyzed a severe energy crisis similar to the 1970s oil shocks, have spurred a concerted effort to explore alternative energy sources. Consequently, the competition has become more balanced. Recognizing that obstacles to adopting clean technology equate to limitations on geopolitical influence, leaders must proactively address such barriers to ensure continued relevance and avoid relative decline.

While the landscape of cleantech competition is vast and multifaceted, there are two main horizontal dimensions—manufacturing and deployment—and two vertical dimensions—renewables and electrification, according to the RMI (Table 1.). Additionally, there is an emerging vertical pertaining to the manufacturing of green molecules – such as hydrogen, although it currently remains relatively niche in comparison to other sectors.

Table 1. The Framing of Change

	Renewables	Electrification
Manufacturing	Making solar panels, wind turbines	Making electric vehicles, batteries, electric machinery
Deployment	Solar and wind as share of the electricity mix	Electric vehicles, electricity as share of total energy

Source: RMI (2024) X-Change: The Race to the Top, www.rmi.org

Industrial Revolutions and Industrial Standards

One way to look at the current and the upcoming industrial revolutions is that they would more and more incorporate concepts such as sustainability, environmentalism, and human-centeredness, combined with further digitization of the economy.

As prof. Klaus Schwab says in his „Stakeholder Capitalism”¹²⁰ concept, „we need a society, economy, and international community that is designed to care for all people and the entire planet”. According to his „stakeholder model” it is required for businesses „to think beyond their direct, primary interests and to include the concerns of employees and their communities in their decision-making”. Also, this means, that businesses should „expand

¹²⁰ Klaus Schwab (2021) Stakeholder Capitalism, World Economic Forum, Published by John Wiley & Sons, Inc.

their horizon beyond the profit and loss statement”, and he claims that the trailblazers are already doing so. But let us dig deeper into the trailblazers’ trails and how they can do better in a global competitive environment. Maybe through a new type of standardization, such as ESG standards? As the author of another major work, „Das Kapital”, once wrote¹²¹, history may sometimes repeat itself as a tragedy or as a farce. Let us explore how one previous standardization took over the world.

It is not a new notion that many countries are creating trade barriers through tariffs, technical barriers or political barriers to protect the industry in the country. For more than three decades now, some economists see technical standards such as ISO 9000 as a potential non-tariff barrier to global free trade¹²². When it was implemented in the 1980s not only as a US-based, but also as a global standard, countries and companies started to require ISO registration as a condition of business. This was an elegant way to use ISO 9000 in order to defuse tension and criticism that there is an explicit attempt to restrict entry of imported products and goods from other countries. Subsequently, the ISO 9000 has been used as a standard against which to assess performance in government-let procurement processes and in the setting of minimum quality requirements for imported goods, specifically high value-added goods.

So the ISO standardization in the 1980s, even if it also had a benefit from the removal of information asymmetries, also was used mainly a tool for protecting domestic markets¹²³. The 1980s attempt of the United States to restrict further the goods trade deficit with Japan however was not quite successful. What really happened is that it was surpassed gradually by imports, coming from Canada in the 1990s, Mexico in the 2000s, and mostly – China after 2005.

Are we looking at a new ISO-alike attempt to impose standardization as a technical barrier, but this time with the ESG and by the European Union? And would it be successful, considering several substantial differences between Europe and the USA? Some of these include the strength of the respective domestic currencies – the Dollar against the Euro; the geopolitical levers of the US Army and the combined European armies; as well as the availability of abundant and cheap energy, both fossil-based and renewable.

For example, the dialogues between the EU and China resemble a lot the ones in the 1980s between the USA and Japan on the bilateral trade relations. The negotiations in the 1980s concluded without a mutually beneficial trade agreement. As for the current negotiations, the outcome is yet to be determined.

¹²¹ Karl Marx (1852) The Eighteenth Brumaire of Louis Bonaparte

¹²² Jatin N. Amin (1994) An integrated approach to implement ISO 9000 series standards to United States manufacturing industry

¹²³ Michal Grajek (2004) Diffusion of ISO 9000 standards and international trade, Social Science Research Network

The latest exchange has been made on behalf of the EU by the European Commission's President Ursula von der Leyen during the trilateral meeting with the French President Emmanuel Macron and the Chinese President Xi Jinping in the beginning of May 2024: „[...] we have a substantial EU-China economic relationship. Our daily trade volume is around EUR 2.3 billion. But this relationship is also challenged, for example through state-induced overcapacity, unequal market access and overdependencies”¹²⁴.

Sustainability reporting standards serve as indispensable instruments for companies to convey their environmental, social, and governance (ESG) performance to stakeholders. However, the multitude of sustainability reporting standards available can present a complex landscape for businesses to navigate. The emergence of sustainability reporting laws and regulations underscores the growing significance of sustainability considerations for businesses. Failure to incorporate sustainability practices may expose companies to penalties or hinder their ability to capitalize on potential opportunities.

The European Commission adopted in July 2023 the European Sustainability Reporting Standards (ESRS) for use by all companies subject to the Corporate Sustainability Reporting Directive (CSRD). According to the EU Commissioner for Financial Services, Financial Stability and Capital Markets Union Mairead McGuinness¹²⁵, the ESG standards „strike the right balance between limiting the burden on reporting companies while at the same time enabling companies to show the efforts they are making to meet the green deal agenda, and accordingly have access to sustainable finance”.

Companies which are not able to report on their sustainability efforts, would not be able to do proper business in Europe. One may consider that larger corporations will be less stressed locally than external ones, which may improve their competitiveness in the short term. However, smaller players or even larger players from less climate-neutral member states – like the ones to the East – may find it more difficult to operate in the European market. The strength of the standards will be shown by the number of extra-EU jurisdictions that decide to follow them. Until now, the „export” of the European Green Deal has been a tough task, primarily in the energy domain¹²⁶. Starting a new front while the old one is still not closed may lead to mixed results.

¹²⁴ European Commission (2024) Opening statement by President von der Leyen ahead of the trilateral meeting with French President Macron and President of the People's Republic of China Xi Jinping

¹²⁵ European Commission (2023) The Commission adopts the European Sustainability Reporting Standards

¹²⁶ Atanas Georgiev (2020) Natural Gas in the Western Balkans in the Framework of the Future Energy Community Goals for 2030, Energy and Climate Diplomacy 2020, Bulgarian Diplomatic Institute

The ESG standards may be an efficient trade barrier for external suppliers if they do not observe the proper reporting requirements. The sustainability standards have the potential to strengthen Europe's position as a low-carbon economy on the global scene, but if they lead to an overstretch, they may push away industrial companies into less restrictive environments. One such new Terra Incognita for energy transition technologies may be the United States with their IRA legislation, which will attempt to claw back from China and other potential competitors the high-tech industries of the future.

Inflation Reduction or Industrial Rise?

The RMI report on the global industrial competitive game¹²⁷ concludes, that China is the current leader, but „there are many races in the energy transition still to play for“. Considering that about 15% of electricity comes from solar and wind, and only 20% of final energy comes from electricity, there would be many additional races to develop the technologies of the future in many sectors of the economy – heavy industries, energy services for homes, transportation, etc. Also, the current status quo regarding mining and especially processing of raw materials could be changed in favor of the USA and Europe or other countries which could support the diversification efforts. Another option to explore is the recycling of critical materials, which could turn consumers of minerals into re-producers.

Moreover, in the modern world change can happen fast. Other countries have led the solar supply chain in the past, most notably the United States, Japan, Australia, and Germany. China has been able to rise to dominance over the past decade only.

The US response to China's leading position has been the IRA. Even if it was not explicitly directed against the EU, one may consider that also it does not act into its favor, due to the more attractive conditions offered to EU-based companies if they relocate to the USA, especially in the light of the strict ESG regulations.

The IRA strives to accelerates the clean energy transition by promoting a number of technologies: clean energy, vehicles, buildings, and manufacturing. The Act includes more than twenty tax provisions and grant programs while it also provides benefits to projects in socially vulnerable communities. The American legislation for the green energy transition offers funding, programs, and incentives as of January 1 2023 for a number of sectors in the economy.

More specifically, considering carbon emissions, the IRA includes

¹²⁷ RMI (2024) X-Change: The Race to the Top, www.rmi.org

incentives for the manufacture of the following fuels and technologies that promote decarbonization¹²⁸:

- Carbon Capture and Sequestration (the so-called 45Q credits): Up to 85 USD per metric ton of CO₂ captured and sequestered from industrial and power generation

- Advanced Manufacturing Production Tax Credit (45X credits): Credit of varying rates for US manufacturers of clean energy components. Manufacturer production tax incentives of 35 USD per kWh for US production of battery cells

- 5 billion USD in advanced industrial facilities deployment funding and 5 billion USD in vehicle manufacturing loans and grants

- More than 4 billion USD in funding for encouraging use of low-carbon materials in federal infrastructure.

According to the EPA reports, the IRA is expected to promote significant efficiency improvements and electrification in energy end-use sectors – most prominently transportation, buildings, and industry.

For example, the electrification in the industry and transportation would reduce greenhouse gases (GHG) emissions. Electric vehicles numbers are expected to rise through measures such as cost reductions for purchase and production, onshoring critical materials for their production, funding public charging infrastructure, and modernization of the electricity grid.

A Powerhouse or a House without Power?

In February 2023, the European Commission published the blueprint for the industrial transformation necessary to support the objectives of the Green Deal, entitled A Green Deal Industrial Plan for the Net-Zero Age¹²⁹.

To a considerable degree, this strategy is driven by the February 2022 Russian invasion of Ukraine, which intensified the energy crisis that had begun to emerge towards the end of 2021 with the post-COVID resurgence in energy consumption. This event heightened the awareness among EU countries regarding the risks associated with excessive dependence on a single import source for a vital economic resource, notably natural gas. Consequently, in the energy sector, this prompted the initiation and execution of the REPowerEU plan, designed to swiftly reduce the EU's dependency on

¹²⁸ EPA (2023) Electric Sector Emissions Impacts of the Inflation Reduction Act

¹²⁹ European Commission (2023) Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – A Green Deal Industrial Plan for the Net-Zero Age, COM(2023) 62 final

Russian fossil fuel imports, while concurrently safeguarding EU consumers from the detrimental impacts of the energy crisis.

The new Green Deal Industrial Plan is based on four pillars:

- a predictable and simplified regulatory environment
- faster access to sufficient funding
- skills
- open trade for resilient supply chains

Two key legislative foundations of this strategy have progressed through the legislative procedures and are approaching implementation. The Council of the EU and the European Parliament achieved political consensus on the Net-Zero Industry Act in February 2024. Concurrently, the Critical Raw Materials Act (CRMA) was officially ratified on 18 March 2024.

The Green Deal Industrial Plan aims to simplify, accelerate and align incentives to preserve the competitiveness and attractiveness of the EU as an investment location for the net-zero industry. This legislation targets the preservation or restoration of the EU's competitive position in the clean tech manufacturing domain. This objective is crucial not only for ensuring security of supply but also for bolstering the EU's global competitiveness. The EU endeavors to sustain its competitive advantage in clean tech sectors where it demonstrates comparative strength such as wind energy, while aiming to reclaim competitiveness in sectors where it has ceded ground such as solar photovoltaic.

The NZIA identifies a list of 19 Net-Zero Technologies whose manufacturing should be supported by the EU. It is not targeted at innovative but at mostly mature, tried-and-tested technologies¹³⁰. Also, it will try to scale-up the net-zero technology manufacturing in the EU in order to secure that at least 40% of the Union's annual deployment needs for strategic net-zero technologies by 2030 are produced domestically¹³¹. Currently, around 90% of mass-manufacturing capacity for several key clean energy technologies is concentrated in China and the Asia Pacific region, according to an IEA analysis¹³².

The 19 net-zero technologies within the scope of this Regulation are the following:

¹³⁰ Florence School of Regulation (2024) Explainer: The EU's Green Deal Industrial Plan, <https://energypost.eu/explainer-the-eus-green-deal-industrial-plan/>

¹³¹ Council of the European Union (2024) Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act) - 7613/23 + ADD 1

¹³² IEA (2023) Energy Technologies Perspectives

- Solar technologies, including solar photovoltaic, solar thermal electric and solar thermal technologies
 - onshore wind and offshore renewable technologies
 - battery and energy storage technologies
 - heat pumps and geothermal energy technologies
 - hydrogen technologies, including electrolyzers and fuel cells
 - sustainable biogas and biomethane technologies
 - carbon capture and storage technologies
 - electricity grid technologies, including electric charging technologies for transportation and technologies to digitalize the grid
 - nuclear fission energy technologies, including nuclear fuel cycle technologies
 - sustainable alternative fuels technologies
 - hydropower technologies
 - renewable energy technologies, not covered under the previous categories
 - energy system-related energy efficiency technologies, including heat grid technologies
 - renewable fuels of non-biological origin technologies
 - biotech climate and energy solutions
 - transformative industrial technologies for decarbonization not covered under the previous categories
 - CO2 transport and utilization technologies
 - wind propulsion and electric propulsion technologies for transportation
 - nuclear technologies not covered under previous categories.

The CRMA legislation will have to tackle the challenge that many technologies rely on the mining and processing of critical materials abroad. In the case of both onshore and offshore wind turbines, the anticipated surge in demand for rare earth metals is projected to escalate by a factor of 4.5 by 2030 and 5.5 times by 2050, respectively. Similarly, the propulsion of electric vehicles by batteries is predicted to substantially elevate the demand for lithium, increasing by a factor of 11 by 2030 and 17 times by 2050, respectively.

The EU is relying on a limited pool of suppliers for critical technologies across various stages of their supply chains. Moreover, for certain technologies, this dependency persists throughout the entirety of the value chain.

The challenges confronting the EU are not unique. The transition toward a net-zero and digital economy is a collective objective of the global community. Nations such as China, Japan, the United States, and South Korea have initiated measures to safeguard their supply chains, enhance processing and refining capabilities of critical raw materials, thereby mitigating strategic dependencies. As the legislative package language says, „But the game has changed, and we need to do more”¹³³.

Recognizing the essential role of secure critical raw materials (CRMs) supply in facilitating the dual transitions of decarbonization and digitalization, the European Commission embarked on proactive measures. As early as 2008, the Union initiated the EU Raw Materials Initiative. Subsequently, in 2011, the Commission released its inaugural Communication on raw materials, featuring the initial list of CRMs, which undergoes triennial updates¹³⁴. The year 2020 witnessed the unveiling of the EU’s CRM Action Plan, coupled with the announcement of the establishment of the European Raw Materials Alliance (ERMA), an Industrial Alliance aimed at fostering strategic autonomy in the CRM sector. The most recent (March 2023) update of the list of CRMs (Table 2.) is exceptional in that it was accompanied a proposal for a dedicated Critical Raw Materials Act (CRM Act or CRMA)¹³⁵.

Table 2. Strategic Raw Materials

Bismuth	Gallium	Manganese battery grade	Rare earth elements for magnets
Boron – metallurgy grade	Germanium	Natural graphite – battery grade	Silicon metal
Cobalt	Lithium – battery grade	Nickel – battery grade	Titanium metal
Copper	Magnesium metal	Platinum group metals	Tungsten

Source: European Commission (2023) Proposal for a Regulation Establishing a Framework for Ensuring a Secure and Sustainable Supply of Critical Raw Materials

¹³³ COM(2023) 165 final. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS - A secure and sustainable supply of critical raw materials in support of the twin transition

¹³⁴ European Commission (2023) Proposal for a Regulation Establishing a Framework for Ensuring a Secure and Sustainable Supply of Critical Raw Materials

¹³⁵ European Commission, Proposal for a Regulation Establishing a Framework for Ensuring a Secure and Sustainable Supply of Critical Raw Materials (COM/2023/160), 16 March 2023, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52023PC0160>.

The European Union exhibits a significant dependency on third-party nations for the importation of critical raw materials (CRMs), with the extraction and processing of these materials being predominantly controlled by a select few major actors, notably China. This assertion was underscored in a study conducted by the Joint Research Centre (JRC) in March 2023¹³⁶.

More specifically, the CRMs initiatives of the EU reflect its ambition and are based on 3 main pillars, which have to work synchronously in a mutually supportive manner:

- Developing the critical raw materials value chain in the EU;
- Boosting the diversification of supply and partnering in a mutually beneficial manner in support of global production;
- Fostering sustainable sourcing and promoting circularity.

The CRMA also sets non-binding 2030 targets for the EU along the entire value chain for SRMs. By 2030, the EU aims to achieve:

- 10% of extraction of EU annual demand of SRMs in the EU
- 40% of processing of EU annual demand of SRMs in the EU
- 25% of recycling of EU annual demand of SRMs in the EU.

According to the CRMA, the European Union should avoid relying on any single supplier country for more than 65% of its annual demand for all strategic raw materials (SRMs) at any stage within the value chain.

The Game is On

The re-industrialization in Europe would not be easy in the new global context of high energy costs and low local production. The United States would face a great challenge with the Presidential Elections in 2024, which may make or break their winning streak. China's steady approach has shown success, but getting too far ahead in the industrial race until now may prove counterproductive, if it provokes protectionist measures. Three key markets will define the next decade or so – the price of oil, the price of carbon, and the costs of net zero industrial production. Winning the Net-Zero Industry Game will inevitably pass through winning the old energy race, as fossil fuels have steadily in the last 30 years defined about 80% of the global energy consumption.

¹³⁶ Samuel Carrara et al., Supply Chain Analysis and Material Demand Forecast in Strategic Technologies and Sectors in the EU. A Foresight Study, Luxembourg, Publications Office of the European Union, 2023, <https://doi.org/10.2760/386650>. See also Guillaume Ragonnaud, „Securing Europe's Supply of Critical Raw Materials. The Material Nature of the EU's Strategic Goals”, in EPRS Briefings, March 2023, [https:// www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2023\)739394](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2023)739394).

And while energy importers tackle their traditional fossil fuel dependencies, they must not forget that trading one master for another is no freedom. If energy-importing countries become importers of energy technologies and their precursors, the new situation may be even worse than the original one.

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Atanas defended a PhD dissertation on the institutional independence of energy regulatory authorities at SU and has master’s degrees in „Energy Economics” and „Finance and Banking” from the same university. He is frequent guest-lecturer at the Diplomatic Institute (part of the Bulgarian MFA) and author of many energy-related publications.

Atanas also visited specializations such as: Babson College’s LEAP Program (in cooperation with America for Bulgaria Foundation), IVLP/Global Energy Security (US State Department), „Generation Next” (Rossotrudnichestvo); „Pricing” and „Benchmarking” at the Public Utility Research Center (Florida, USA), „European Energy Law” at the Florence School of Regulation, energy economics at Azerbaijan Diplomatic Academy, etc.

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MODELING THE FUTURE: ENERGY SCENARIOS FOR EU AND BULGARIA'S GREEN TRANSITION AMIDST GEOPOLITICAL SHIFTS

Lyubomira Gancheva, Energy Expert

Introduction

Background

In the wake of the 21st century, the global energy landscape is undergoing a radical transformation, driven by the comprehensive imperatives of climate change mitigation and sustainable development. The European Union (EU), with its ambitious commitment to become the first climate-neutral continent by 2050, as articulated in the package for the European Green Deal (EGD)¹³⁷, is at the forefront of this tremendous transformation. Such a determined vision requires a comprehensive reconsideration of the essence and structure of national energy systems (production, transmission and consumption), their integration on European level and policy frameworks and international energy relations. Bulgaria, as an integral part of the EU, mirrors these challenges and opportunities, embodying the complex interplay between national priorities and collective European goals in the process of green transition. The country has taken steps to align with the EGD's goals, albeit facing challenges and requiring significant financial investment. The country's National Energy and Climate Plans (NECP)¹³⁸ highlights moderate progress in areas such as energy efficiency, renewable energy implementation and regional power market integration. That plan is critical for Bulgaria to meet the EU's ambition for carbon neutrality by 2050, however, there are some reasonable concerns that these efforts do not yet provide a strong foundation for a comprehensive and transformative policy path towards achieving these long-term goals¹³⁹.

Financially, Bulgaria has recognized the substantial investments needed to support the implementation of the Green Deal. On June 8th, 2023¹⁴⁰ the European Union's Modernisation Fund paid Bulgaria €197 million for modernizing its electricity distribution grid. This funding aimed to accelerate the

¹³⁷ European Commission, The European Green Deal, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

¹³⁸ Integrated Energy and Climate Plan of the Republic of Bulgaria 2021-2030, update as of 2024, https://commission.europa.eu/document/download/58f949db-7df0-4a6d-abf9-befdac47485a_bg?filename=Bulgaria%20-%20Draft%20updated%20NECP%202021-2030%20BG.pdf

¹³⁹ Center for the Study of Democracy, 'Lost in Transition: Bulgaria and the European Green Deal', May 20202, <https://www.brusselsdialogue.net/partner-publications/lost-in-transition-bulgaria-and-the-european-green-deal>

¹⁴⁰ The Sofia Globe Stuff, 'European Green Deal: EU pays 197M euro to Bulgaria', June 2023, <https://sofiaglobe.com/2023/06/08/european-green-deal-eu-pays-197m-euro-to-bulgaria/>

electrification of transport, storage deployment, and the decarbonisation and decentralisation of energy consumption and production. It's part of the broader efforts to modernize energy systems, reduce greenhouse gas emissions, and improve energy efficiency across several beneficiary countries, demonstrating the EU's support for Bulgaria's transition to greener energy.

The current geopolitical landscape, marked by heightened uncertainties, shifting alliances, and fluctuating energy markets, presents both challenges and opportunities for the EU and Bulgaria's energy transition. Events such as geopolitical tensions in energy-rich regions, fluctuating global oil and gas prices, and the evolving landscape of international trade agreements profoundly impact energy security and sustainability. These geopolitical dynamics are not mere externalities, they are central to the planning and implementation of effective energy transition strategies. Recognizing the critical role of geopolitical factors in shaping energy policies and practices is essential for ensuring the resilience and success of the green transition.

Problem Statement

The path to achieving a sustainable and climate-neutral future is fraught with complexities, not least of which are the geopolitical factors that influence energy security and policy decisions. The intricate dance of international relations and energy diplomacy can significantly impact the availability, affordability and sustainability of energy resources. For both EU and Bulgaria, which are navigating their transition towards greener energy systems, these geopolitical shifts pose a multifaceted challenge. There is a pressing need to understand how geopolitical dynamics intersect with energy policy and technology adoption, influencing the pace and direction of the green transition. This paper seeks to bridge this gap by integrating geopolitical analysis to the energy scenario modeling approach, providing a nuanced understanding of how geopolitical shifts could shape the future of energy in the EU and in Bulgaria.

Research Objectives

This paper sets out the following objectives, aimed at unraveling the complex relationship between geopolitical shifts and the green transition:

- To conduct an analysis of recent geopolitical developments and assess their impact on the EU and Bulgaria's energy landscape and green transition strategies.
- To integrate geopolitical considerations into the development and evaluation of energy scenarios, offering a more realistic projection of future energy trends for the EU and for Bulgaria.

- To critically evaluate how these energy scenarios align with or diverge from the goals of the green transition, considering the geopolitical context.
- To formulate strategic recommendations for policymakers, aimed at enhancing the resilience and sustainability of the EU and Bulgaria's energy systems in the face of geopolitical uncertainties.

Geopolitical Context and Its Implications

The Intricate Dance of Geopolitics and Energy

The 21st century's geopolitical landscape is marked by a series of transformative shifts, profoundly influencing the global energy sector. These turns, ranging from geopolitical tensions in energy-rich regions to the strategic maneuvering of global powers, underscore the intricate link between geopolitics and energy policy. For the European Union and Bulgaria these developments pose both challenges and opportunities in their pursuit of a green transition.

The century began under the shadow of conventional energy paradigms, with oil, gas, and coal dominating the global energy mix. These resources, unevenly distributed across the world, became focal points of geopolitical tension. Nations rich in them wielded significant influence on the global stage, often using energy as a tool of diplomacy or, conversely, as a weapon of economic coercion. Two of the most strategically important maritime locations in the world - Strait of Hormuz¹⁴¹ and the South China Sea¹⁴², serving as critical chokepoints for global energy transport, exemplified the strategic importance of geography in energy politics, turning these waters into arenas of naval posturing and geopolitical brinkmanship. Their significance stems not only from their geographic positions but also from the vast volumes of international trade and energy resources that pass through these waters. They both represent the critical nexus of geography, energy,

¹⁴¹ According to the Strauss Center for International Security and Law 20% of the world's petroleum (and about 35% of the petroleum traded by sea) passes through this strait, making it a crucial artery for global energy markets. The strategic importance of the Strait of Hormuz has made it a flashpoint for geopolitical tensions, particularly involving Iran and the United States, along with their respective allies. Iran's position along the northern coast of the strait gives it the ability to potentially disrupt or control the flow of oil from the Middle East to the rest of the world, a power it has threatened to use in times of heightened tensions. Such disruptions could have catastrophic effects on global energy prices and economic stability.

¹⁴² The South China Sea is a critical maritime route, through which a significant portion of the world's commercial shipping passes, including over half of the world's annual merchant fleet tonnage and a third of all maritime traffic globally. This includes vast amounts of energy resources, such as oil and liquefied natural gas from the Persian Gulf and Indonesia, heading to major East Asian economies. It is also notable for its complex territorial disputes involving China, Taiwan, the Philippines, Vietnam, Malaysia, and Brunei.

and security. The ongoing disputes and geopolitical maneuverings in these waters highlight the intricate balance between national interests, regional stability, and the uninterrupted flow of global commerce and energy supplies. The international community's efforts to manage these tensions, through diplomacy and international law, remain a pivotal aspect of global security and economic well-being and underscore the complex interplay between regional ambitions, global energy security, and international diplomacy.

However, the narrative began to shift with the advent of renewable energy technologies. Solar, wind, and hydro power started to offer alternatives to the carbon-intensive energy systems of the past, heralding a new era of energy geopolitics. This transition, however, is not merely a technological shift but a profound transformation in the global balance of power. Countries, traditionally dependent on energy imports, saw in it an opportunity to achieve energy independence and reduce their vulnerability to external shocks and manipulation. Meanwhile, nations, historically dominant in the energy sector, faced the challenge of adapting to a rapidly changing global energy landscape.

The European Union's push towards a Green Deal, aiming for carbon neutrality by 2050, exemplifies the geopolitical implications of energy transition. The initiative not only addresses climate change, but also seeks to reduce Europe's dependence on imported fossil fuels, reshaping its energy relations with major suppliers like Russia. On the other side of the globe, China's Belt and Road Initiative illustrates another dimension of energy geopolitics, as it invests in energy infrastructure across Asia, Africa, and Europe, extending its influence through the soft power of economic investment. The rise of 'energy nationalism' in countries like the United States, which achieved energy independence through the shale revolution, further complicates the geopolitical landscape. The U.S.'s transition from a net energy importer to an exporter has significant implications for global energy markets and geopolitical alignments, influencing everything from trade agreements to military alliances.

As the century progresses, the intersection of climate change, technological innovation, and geopolitical strategy will continue to shape the global energy landscape. The push for sustainability and the decarbonization of the economy pose both challenges and opportunities, forcing nations to navigate the intricate dance of geopolitics and energy with caution and foresight. In this dynamic arena, the ability to adapt, innovate, and cooperate will determine not only the future of energy but the very stability and prosperity of the global order.

Historically, energy resources have played a central role in shaping geopolitical relations, influencing the fate of nations and shaping the dynamics

of global power. The strategic manipulation of energy supplies, whether oil, natural gas, or coal, can bolster a nation's global standing, underpinning its economic strength and diplomatic influence. This leverage is wielded with great effect by energy-rich countries, which have the capacity to use their resources as tools of diplomacy, economic inducement, or, in stark contrast, as instruments of coercion.

The role of energy as a geopolitical lever is most evident in the relationships between energy-producing countries and those dependent on energy imports. Nations endowed with abundant energy resources have often wielded them as tools of influence, leveraging energy exports to achieve broader political and economic objectives. The 1973 oil crisis serves as a seminal example, where the Organization of Arab Petroleum Exporting Countries (OAPEC) imposed an oil embargo against countries perceived as supporting Israel during the Yom Kippur War. This action not only demonstrated the capacity of energy-exporting countries to influence global politics and economies but also highlighted the vulnerability of energy-dependent nations, leading to widespread economic and political ramifications worldwide. In the contemporary landscape, Russia's use of natural gas exports to Europe offers a vivid illustration of energy's geopolitical leverage. Russia, through state-controlled entities such as Gazprom, has at times adjusted its gas supplies to Europe in the context of broader political disputes, exemplifying how energy dependencies can be exploited for geopolitical goals. This dynamic is evident in the way oil-rich Middle Eastern countries and gas-rich Russia have managed their energy exports, impacted global markets and influenced by international diplomacy. For importing nations, especially within the EU and Bulgaria, this creates a delicate balance between securing energy needs and maintaining geopolitical independence. Conversely, energy dependence can place consuming nations in a vulnerable position, subject to the whims of their suppliers. This dependency can lead to significant shifts in foreign policy and international alignments, as countries seek to secure their energy supplies through diplomatic means, diversification strategies or a mixture of both. The pursuit of energy security drives nations to forge strategic partnerships, invest in alternative energy sources and develop domestic energy industries to reduce reliance on external suppliers.

The Green Deal, the energy security and the geopolitical autonomy

For the European Union and its member states, including Bulgaria, the challenge lies in navigating the delicate balance between energy security and geopolitical autonomy. The EU's reliance on imported energy, particularly from Russia, has spurred efforts towards diversification of energy sources and routes, as well as increased investment in renewable energy as part of the European Green Deal. This initiative aims not only to reduce

greenhouse gas emissions, but also to lessen the EU's energy dependency on external sources, which is seen as a critical aspect of strengthening the EU's geopolitical stance and independence.

The transition to green energy, while a solution to reducing dependency on fossil fuels, introduces new complexities in the geopolitical landscape. The global race for critical raw materials, necessary for renewable energy technologies, such as rare earth elements, lithium, and cobalt, is creating new dependencies and potentially shifting the balance of power towards countries that control these resources. Moreover, the transition requires significant financial investment, technological innovation, and international cooperation, aspects that are intricately tied to the broader dynamics of international relations and economic policies. Last but not least, the transition to renewable energy also introduces new forms of geopolitical competition, as countries vie for leadership in green technology, access to critical minerals required for renewable energy systems, and the economic benefits that come with being a pioneer in the energy technologies of the future. Furthermore, the global push for action on climate change, epitomized by international agreements like the Paris Agreement, has heightened the geopolitical significance of energy policy. Nations are increasingly judged by their commitments to reducing carbon emissions, influencing their diplomatic relationships and standing on the world stage. As a result, energy policy has become inextricably linked with environmental and climate diplomacy, further complicating the traditional dynamics of energy geopolitics. In navigating the complex landscape of energy geopolitics, nations must balance their immediate energy needs with long-term strategic considerations, including environmental sustainability, economic resilience, and geopolitical stability. The capacity to leverage energy resources for geopolitical ends remains a potent tool, but one that must be wielded with an awareness of the shifting dynamics of global energy markets and the emerging challenges and opportunities of the transition to a more sustainable and diversified energy future.

In summary, energy resources have been and continue to be a central factor in shaping geopolitical relations. The historical and contemporary examples of how nations leverage their energy resources for broader political and economic objectives underline the importance of energy in international diplomacy. For the EU and Bulgaria, addressing the challenges of energy dependency, navigating the transition to green energy, and ensuring energy security in the face of geopolitical tensions are critical for maintaining geopolitical independence and advancing towards a sustainable and resilient energy future.

Recent Geopolitical Shifts Reshaping Energy Landscapes

The last decade has seen significant geopolitical events reshaping the global energy landscape. The resurgence of geopolitical tensions in the Middle East, the evolving stance of the United States towards energy exports, and the implications of Brexit on European energy markets are pivotal. Furthermore, the Russia-Ukraine conflict has starkly highlighted the vulnerabilities associated with energy dependence, prompting a reevaluation of energy security strategies within the EU and Bulgaria. These events have catalyzed fluctuations in global energy prices, disrupted supply chains, and spurred a rethinking of energy diplomacy. The shifting geopolitical terrain underscores the need for the EU and Bulgaria to adapt their energy policies in order to enhance resilience against external shocks and to pivot towards more sustainable and secure energy sources as part of their green transition.

The EU's dependence on Russian energy sources has seen significant shifts in recent years, particularly in response to geopolitical tensions and the push for energy diversification. Historically, the EU was heavily reliant on Russian natural gas, coal, and oil, but there have been concerted efforts to reduce this dependence. According to the European Commission in terms of natural gas, the EU's reliance on Russia decreased markedly from 45% in 2021 to 15% by 2023¹⁴³. The import of petroleum oils and coal from Russia has also undergone significant changes. For petroleum oils, the EU introduced a ban on seaborne imports of Russian crude oil in December 2022 and embargoed refined oil products from February 2023, which led to a drastic reduction in imports from Russia. By the third quarter of 2023, Russia's share of the EU's petroleum oil imports fell to 3.9%, a significant decrease from its status as the largest supplier in previous years¹⁴⁴. Similarly, EU sanctions against Russia have effectively ended the import of Russian coal, with Russia's share dropping to zero in the third quarter of 2023 from being the largest supplier in 2021.

Those reductions were achieved through a combination of several strategic measures, amongst which stands the European Commission's REPowerEU plan, aimed to enhance Europe's energy security by promoting energy saving, accelerating the transition to clean energy and diversifying energy import sources. This plan represents a pivot towards greater energy independence and sustainability, aligning with the EU's goal of achieving climate neutrality by 2050. These changes reflect the EU's broader strategy to reduce dependency on external energy sources, particularly from geopolitically sensitive areas, and to shift towards a more diversified and

¹⁴³ European Commission, In focus: EU energy security and gas supplies, https://energy.ec.europa.eu/news/focus-eu-energy-security-and-gas-supplies-2024-02-15_en

¹⁴⁴ Eurostat, EU trade with Russia – latest developments, <https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=558089>

sustainable energy mix. The focus has been on securing energy supplies from more reliable and stable partners, with Norway and the US becoming the main gas suppliers to the EU in 2023. This strategic shift is part of a broader effort to ensure energy security, price stability, and the successful transition to renewable energy sources within the EU^{145, 146}.

Geopolitical Challenges to the EU's Green Transition

The dawn of the 21st century heralded an era of unprecedented change in the global energy landscape, driven by a confluence of geopolitical shifts that have reshaped the contours of international relations and energy diplomacy. These changes, marked by regional power dynamics, technological advancements, and the urgent call for environmental sustainability, have collectively forged a new paradigm in the way energy is produced, distributed, and consumed across the world.

One of the most profound shifts in this landscape has been the re-emergence of the United States as an energy superpower, thanks to the shale revolution. The dramatic increase in the production of shale gas and oil has not only transformed the U.S. into a net exporter of energy but has also altered global energy markets and geopolitical alliances. This shift has diminished the control of Organization of the Petroleum Exporting Countries (OPEC) over oil prices and has given the U.S. significant leverage in foreign policy, particularly in its relations with energy-dependent economies and regions that have traditionally relied on Middle Eastern oil. Simultaneously, the assertive foreign energy policies of Russia, particularly in Eastern Europe and the Middle East, underscore the ongoing use of energy as a tool of geopolitical influence. Russia's role as a major natural gas supplier to Europe, coupled with its strategic military engagements in Syria and partnerships with other energy-rich countries, demonstrates the intricate links between energy policy and geopolitical strategy. These actions not only aim to strengthen Russia's global influence but also seek to secure its interests in the face of shifting energy dynamics and the growing competitiveness of liquefied natural gas (LNG) markets. In Asia, China's Belt and Road Initiative (BRI) represents a strategic endeavor to reshape global trade and energy routes. Through investments in infrastructure across Asia, Africa, and Europe, China aims to secure its energy supply chains while extending its geopolitical influence. The BRI, by connecting overland and maritime routes, has significant implications for global energy markets, potentially facilitating more efficient distribution channels for oil and gas but also raising concerns about regional sovereignty and environmental sustainability.

¹⁴⁵ Eurostat, EU imports of energy products - latest developments, <https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=571112>

¹⁴⁶ European Commission, 'In focus: EU energy security and gas supplies', https://energy.ec.europa.eu/news/focus-eu-energy-security-and-gas-supplies-2024-02-15_en

The transition towards renewable energy sources, driven by the urgent need to address climate change, is another critical factor reshaping the geopolitical landscape. The global race for clean energy technologies has led to increased competition for critical minerals required for solar panels, wind turbines, and batteries, creating new dependencies and strategic vulnerabilities. Countries leading in the production of these minerals, such as China, are poised to gain new forms of geopolitical leverage, while those lagging in the clean energy transition may face increased economic and environmental risks.

Moreover, the most significant global climate agreement to date – the Paris Agreement, together with the united international efforts to combat climate change have brought environmental policy to the forefront of geopolitical discussions. Nations are increasingly evaluated on their commitment to reducing carbon emissions, influencing not only their diplomatic relationships but also their access to international finance and participation in global markets. This shift has elevated the role of climate diplomacy as a central aspect of international relations, with countries negotiating not just on the terms of trade and security, but also on the commitments to a sustainable future.

The European Union's ambitious green transition, encapsulated in the European Green Deal, is not immune to the vicissitudes of the geopolitical environment. The EU's dependence on external energy sources, particularly from geopolitically sensitive regions, underscores a critical vulnerability. The bloc's efforts to reduce reliance on Russian gas, following geopolitical tensions and the pursuit of energy diversification, highlight the geopolitical challenges inherent in securing energy supplies. This shift demands building partnerships with more stable and reliable energy suppliers and increasing investments in renewable energy sources to reduce the EU's overall dependency on external fossil fuels. The transition towards renewable energy, while a solution to long-term energy security concerns, at the same time introduces new dependencies on raw materials required for green technologies, which are often concentrated in a few countries.

Geopolitical tensions, such as those arising from the EU's relationships with energy-supplying countries, can significantly impact the EU's energy security and its green transition. For instance, the EU's sanctions against Russia and the latter's response illustrate how geopolitical disputes can influence energy markets, prices, and supply chains. Such tensions require a delicate balancing act between maintaining energy security, pursuing diplomatic relations, and adhering to the principles of the green transition.

The EU's green transition is also influenced by its ability to forge and maintain international partnerships that support its energy and climate goals.

Collaborations with countries rich in renewable energy resources or critical raw materials could easily prove to be essential for green technologies and can facilitate the EU's transition. However, these partnerships must be navigated carefully, considering the geopolitical implications, to ensure that they align with the EU's broader strategic interests and values.

For EU member states like Bulgaria, which have their own unique energy and geopolitical challenges, aligning national policies with the EU's green transition goals requires careful consideration of the broader geopolitical landscape. Bulgaria's efforts to diversify its energy sources, improve energy efficiency, and increase renewable energy usage are integral to its alignment with the Green Deal. Yet, these efforts are influenced by regional geopolitics, historical energy dependencies and the need for substantial investments in energy infrastructure and technologies. The EU's path towards a sustainable and secure energy future is shaped by a myriad of geopolitical factors. Addressing these challenges requires a multifaceted approach that includes diversifying energy sources, strengthening international partnerships, and investing in renewable energy and green technologies. By understanding and addressing these geopolitical implications, the EU can ensure that its green transition is not only environmentally sustainable but also geopolitically resilient.

The convergence of these geopolitical shifts is leading to a complex and evolving energy landscape, characterized by a delicate balance of power, shifting alliances, and the search for a sustainable equilibrium. As nations navigate this landscape, the challenges of energy security, environmental sustainability, and economic viability remain paramount, requiring a nuanced understanding of the interplay between geopolitical strategy and energy policy. In this dynamic context, the capacity to adapt and innovate will be crucial for ensuring resilience and prosperity in the face of the profound transformations that lie ahead.

Geopolitical Dynamics in Energy Scenario Planning: Shaping the Future of the EU and Bulgaria

The integration of geopolitical considerations into the development, analysis and implementation of energy scenarios is becoming increasingly critical for offering a more realistic projection of future energy trends, especially for regions like the European Union and countries such as Bulgaria. This integration is essential in understanding the complex interplay between politics, economics, and technology that shapes the global energy landscape. It helps stakeholders to anticipate challenges and opportunities, thereby enabling more informed and strategic decision-making. The geopolitical

landscape significantly influences energy production, distribution, and consumption patterns. For the EU and Bulgaria this involves navigating a supreme network of international relations, regional conflicts, and alliances, all of which can impact energy security and sustainability. The EU's reliance on energy imports, particularly natural gas and oil, exemplifies the necessity of incorporating geopolitical considerations into energy planning. This reliance makes the EU vulnerable to supply disruptions arising from political instability in supplier countries or regions, or from disputes with major energy suppliers.

Geopolitical Dynamics and the Green Transition: Navigating the Energy Landscape of the EU and Bulgaria

The recent geopolitical developments have cast a significant shadow over the European Union and Bulgaria's energy landscape, compelling a reevaluation of energy security and green transition strategies. The EU, with its ambitious aims for a sustainable future, as outlined in the European Green Deal, finds itself at a crossroads, where geopolitical tensions and alliances necessitate a delicate balancing act between securing energy supplies and advancing green transition goals. These challenges are particularly pronounced in the context of the EU's dependence on energy imports, making the bloc vulnerable to external geopolitical shifts, especially those affecting oil and gas supplies. As such, the EU's efforts to diversify energy sources have gained urgency, underscoring the need for a resilient and flexible energy strategy that can adapt to the dynamic geopolitical landscape.

Bulgaria, as a part of the EU, is intricately linked to this broader context, grappling with its own set of challenges and opportunities. The country's energy sector, historically reliant on fossil fuels, is in a pivotal transformational phase, with a growing emphasis on transitioning to renewable energy sources. However, Bulgaria's efforts are not immune to the impacts of geopolitical developments. The nation's energy strategy is strongly influenced by its geopolitical position and relationships, affecting its ability to secure stable and diversified energy supplies. Moreover, Bulgaria's ambition to enhance its renewable energy capacity and reduce carbon emissions is intertwined with the EU's broader green transition goals, making cooperation and alignment with EU policies critical for its energy future.

Considering these geopolitical challenges, both the EU and Bulgaria are poised to accelerate their transition towards greener energy solutions. The push towards renewable energy sources, such as wind, solar, and hydroelectric power, is gaining momentum, driven by the dual objectives of enhancing energy security and meeting sustainability targets. This shift represents a strategic milestone, not only as a response to the immediate need

for energy diversification, but also as a long-term investment in a sustainable energy future. As the EU and Bulgaria navigate these turbulent geopolitical waters, their success in achieving energy security and green transition goals will hinge on their ability to adapt, innovate, and cooperate both internally and with international partners. This evolving energy landscape, shaped by geopolitical dynamics, presents both challenges and opportunities for forging a sustainable, secure, and resilient energy future for the EU and Bulgaria.

The pursuit of energy independence, sustainability, and climate neutrality is intricately linked to the EU's ability to navigate geopolitical challenges. These include securing reliable and diversified energy supplies, managing relations with key energy partners, and mitigating the risks associated with geopolitical tensions. For Bulgaria, which faces its own unique set of geopolitical and energy challenges, aligning national policies with the EU's green transition goals requires careful consideration of the broader geopolitical landscape. The path to energy sustainability and security is fraught with challenges that necessitate a nuanced understanding of the geopolitical implications of energy policy decisions.

Bulgaria's Energy Landscape in the Geopolitical Context

Bulgaria's Energy Dependency and Security

Bulgaria's energy sector, marked by its reliance on a limited range of external sources for fossil fuels, underscores a significant challenge in terms of energy security. This reliance not only exposes Bulgaria to fluctuations in global energy prices but also places it at the mercy of geopolitical tensions that can disrupt energy supplies. Historically, the country has leaned heavily on oil and gas imports, primarily from Russia, which has shaped its energy landscape and policy decisions. This dependence on a single or limited number of external sources heightens vulnerability to supply disruptions, which can have far-reaching implications for economic stability and energy security.

In response to these challenges, recently Bulgaria has initiated steps towards diversifying its energy sources and routes, aiming to mitigate the risks associated with its energy dependency. Shift to alternative energy suppliers, investments in natural gas infrastructure, such as interconnectors with neighboring countries and increase storage capacities, are part of a broader strategy to enhance energy security. Additionally, Bulgaria's participation in EU-wide energy projects and its commitment to the European energy policy framework reinforce its strategy for reducing dependency and improving resilience against external shocks.

However, achieving a significant reduction in energy dependency and enhancing security requires a sustained commitment to diversifying the energy mix, including a stronger focus on renewable energy sources. Bulgaria's vast potential for solar, wind, and hydroelectric power remains underexploited, offering a pathway to not only reduce reliance on imported fossil fuels, but also contribute to environmental sustainability and emission reduction goals. As Bulgaria navigates the complexities of its energy dependency and security challenges, the move towards a more diversified and sustainable energy portfolio emerges as a crucial element in securing its energy future, aligning with broader European objectives for energy independence and sustainability.

Bulgaria's Role and Challenges in the EU's Energy Transition

Within the European Union's ambitious journey towards a sustainable and green energy future, Bulgaria plays a nuanced role, reflecting both its unique challenges and potential contributions to the EU's energy transition. As the EU pivots towards renewable energy sources and seeks to diminish its carbon footprint, member states like Bulgaria are essential in this collective endeavor. However, Bulgaria's energy sector, historically reliant on coal and heavily dependent on nuclear and hydroelectric power for domestic electricity production, faces significant hurdles. These include the need for substantial investment in renewable energy infrastructure, the modernization of existing facilities, and the development of a regulatory and economic environment conducive to green energy initiatives.

Bulgaria's challenges in contributing to the EU's energy transition are further compounded by economic considerations and energy security concerns. The transition to green energy requires not just a shift in energy sources but also a comprehensive overhaul of the country's energy infrastructure, which demands considerable financial resources and technological expertise. Moreover, balancing energy affordability and security with the ambitious targets of the green transition presents a complex dilemma. Ensuring a stable and affordable energy supply, while moving away from fossil fuels and reducing carbon emissions, requires innovative solutions and supportive policies at both the national and EU levels.

Despite these challenges, Bulgaria holds significant potential to contribute to the EU's energy transition. The country's geographic and climatic conditions offer ample opportunities for the development of solar and wind energy. Additionally, Bulgaria's strategic location at the crossroads of major energy routes in Southeast Europe gives it a pivotal role in the diversification of the EU's energy sources and routes, enhancing overall European energy security. As Bulgaria works to overcome its hurdles, its successful integration

into the EU's green transition could serve as a model for other member states facing similar challenges. By leveraging its potential and addressing its obstacles, Bulgaria can play a crucial role in the collective European effort to achieve a sustainable and secure energy future.

The Interplay Between Geopolitical Shifts and Energy Transition

Opportunities Amidst Geopolitical Uncertainties

While the geopolitical landscape presents significant challenges, it also offers opportunities for the EU and Bulgaria to advance their green transition. The current geopolitical uncertainties can serve as a catalyst for accelerating the shift towards renewable energy, enhancing energy efficiency, and fostering technological innovation. The push for energy diversification, driven by the need to reduce dependency on volatile regions, can spur investments in solar, wind, and other renewable energy sources. Moreover, geopolitical pressures can encourage greater regional cooperation and integration within the EU, strengthening the collective energy security and resilience of member states. These opportunities, if seized, can propel the EU and Bulgaria towards a more sustainable and secure energy future.

Aligning Visions and Realities: A Critical Analysis of EU and Bulgarian Energy Scenarios in the Context of the Green Transition and Geopolitical Dynamics

The green transition, defined by its goal to shift from fossil-based to zero-carbon energy sources within the European Union, has positioned itself as a central pillar in the EU's strategy to combat climate change and promote sustainable development. This transition is particularly pertinent for member states like Bulgaria, which have historically relied on coal and other non-renewable energy sources. The critical evaluation of energy scenarios, both at the EU level and within Bulgaria, offers an insightful glimpse into the practical challenges and opportunities that lie ahead in aligning national energy policies with broader European goals amidst a complex geopolitical landscape.

The endeavor to model future energy scenarios within the context of the EU and Bulgaria's green transition, amidst the backdrop of shifting geopolitical landscapes, necessitates a thorough grounding in relevant theoretical frameworks. This paper outlines the key theories and models that underpin the analysis of energy policy and geopolitical considerations in the context of sustainable development and energy transition. By exploring concepts from energy economics, political science, and systems theory, we establish

a multidisciplinary theoretical foundation that informs the development and evaluation of energy scenarios. This approach enables a comprehensive analysis of the factors shaping energy policies and their implications for achieving the objectives of the European Green Deal and Bulgaria's national energy strategy.

Energy Economics and Policy Analysis

Understanding the economic underpinnings of the energy transition is crucial for assessing the feasibility and implications of different energy scenarios. This section delves into the principles of energy economics, including supply and demand dynamics, the role of subsidies and taxation, and the economics of renewable energy sources. Theories related to the cost of energy transitions, including the concept of stranded assets and the social cost of carbon, provide insights into the economic trade-offs involved in shifting away from fossil fuels towards renewable energy sources.

Energy policy instruments are tools used by governments to steer the energy sector towards desired outcomes, such as increased use of renewable energy, improved energy efficiency, and reduced carbon emissions. This section reviews the range of policy instruments available, including regulatory measures, market-based mechanisms, and fiscal policies. Theoretical perspectives on policy effectiveness, such as the theory of market failure and the principle of policy mix, guide the discussion on selecting and designing policies to achieve the green transition goals.

Political Economy and Geopolitical Analysis

The Role of Geopolitics in Energy Policy

The role of geopolitics in shaping energy policy within Bulgaria and the broader European Union is intricate and pivotal. Geopolitical dynamics influence every aspect of energy policy, from resource management and security of supply to international collaborations and energy independence. For Bulgaria, which is strategically positioned at the crossroads of East and West, these factors are particularly significant. The country's energy policy has been historically shaped by its dependency on Russian gas, making it vulnerable to geopolitical tensions. As a result, both the EU and Bulgaria have prioritized diversifying energy sources and routes to enhance security and reduce reliance on a single supplier.

Within the European Union, energy policy is increasingly influenced by the goal of achieving energy independence and security. This shift is a direct response to geopolitical uncertainties, such as those arising from fluctuating relations with Russia, particularly evident in the context of natural gas

supplies. The EU's push for energy diversification is evident in its support for projects like the Southern Gas Corridor, which aims to bring gas from the Caspian region to Europe, bypassing Russia. For Bulgaria, participating in such projects not only aligns with EU energy policy but also helps reduce its energy dependency, which is crucial for its national security and economic stability.

The transition towards renewable energy sources is another area where geopolitics plays a crucial role. The EU's ambitious climate goals, underpinned by the European Green Deal, aim to decouple energy policy from geopolitical constraints imposed by fossil fuel dependence. Bulgaria, with its commitment to the green transition, faces challenges and opportunities in this regard. The adoption of renewable energy sources is partly driven by the desire to lessen geopolitical risks associated with fossil fuels and to align with EU directives that advocate for a sustainable and self-sufficient energy future.

However, the path towards renewable energy in Bulgaria is not without its geopolitical implications. The shift has significant economic impacts, particularly in regions dependent on traditional energy industries. The Just Transition Fund, established by the EU, aims to mitigate these impacts by supporting regions that face socio-economic challenges due to the phasing out of coal. This fund exemplifies how geopolitical considerations not only shape but also support the implementation of energy policies, ensuring that transitions do not destabilize regional economies or exacerbate social inequalities.

The interplay between geopolitics and energy policy in Bulgaria and the EU is a complex but essential consideration in the pursuit of energy security and sustainability. As Bulgaria aligns its policies with EU goals, it must navigate the geopolitical landscape thoughtfully. This involves balancing between reducing energy dependencies, embracing renewable energies, and managing the socio-economic implications of such shifts. The ongoing geopolitical dynamics will continue to define the contours of energy policy, demanding adaptive strategies that ensure resilience and sustainability in the face of changing global relations.

Integrating Geopolitical Considerations into Energy Policy

Integrating geopolitical considerations into energy policy is crucial for both Bulgaria and the European Union as they navigate the complexities of contemporary global relations and strive for energy security and sustainability. For Bulgaria, this integration involves balancing its historical energy relationships with strategic diversification. The country's dependence on Russian energy supplies, particularly natural gas, has often placed it in a vulnerable geopolitical position. By aligning more closely with EU energy

strategies, Bulgaria aims to reduce this dependency through diversification of energy sources, including more robust incorporation of renewable energy technologies and participation in alternative energy projects like the Southern Gas Corridor.

The European Union's approach to integrating geopolitical considerations is evident in its comprehensive energy strategies, such as the European Energy Security Strategy and the European Green Deal. These policies emphasize reducing dependency on external energy suppliers and promoting energy sources that contribute to political as well as environmental stability. For EU member states, including Bulgaria, this means adhering to a framework that not only addresses energy needs but also mitigates geopolitical risks. These risks include energy supply disruptions and the political leverage that external suppliers can exert. Thus, the EU's policy framework encourages member states to develop resilient energy systems that support regional and continental security.

Moreover, the implementation of the EU's energy policies in Bulgaria reflects the broader geopolitical goal of fostering regional stability and economic growth within Southeast Europe. Projects funded under the EU Cohesion Policy, for instance, not only aim to improve energy efficiency and expand renewable energy use but also strengthen economic ties and regional cooperation. This regional focus is crucial as it helps buffer against the geopolitical unpredictabilities that can arise from external pressures and conflicts. It also positions Bulgaria as a pivotal player in the Balkan energy network, enhancing its strategic importance and contributing to its energy sovereignty.

In essence, the effective integration of geopolitical considerations into Bulgaria's energy policy requires ongoing adjustments and a forward-looking approach. This involves continuous monitoring of global geopolitical shifts, proactive participation in EU energy initiatives, and fostering domestic capabilities in emerging energy technologies. By doing so, Bulgaria can enhance its energy security, contribute to regional stability, and align more closely with the EU's ambitious goals for a sustainable and secure energy future. These steps are vital not just for economic reasons but for the broader strategic objective of maintaining stability in an increasingly interconnected and energy-dependent world.

Systems Theory and Energy Scenario Modeling: Enhancing Understanding Through Systems Thinking

Systems theory offers a comprehensive lens for examining the complexities and interdependencies inherent in Bulgaria's energy sector. This theoretical framework is particularly useful for understanding how different elements of

the national energy system interact and influence one another during the transition from traditional fossil fuels to more sustainable energy sources. In the context of Bulgaria, systems thinking helps policymakers identify key leverage points where interventions could effectively accelerate the green transition. It also provides insights into the potential systemic impacts of various policy decisions, enabling a more strategic approach to national energy planning and implementation.

Energy Scenario Modeling in Bulgaria: Theoretical Foundations and Practical Approaches

Energy scenario modeling in Bulgaria should involve both theoretical and practical approaches that aim to map out the future of the country's energy landscape amidst its transition towards more sustainable sources. The theoretical foundation is grounded in systems theory, which helps to understand and predict how different elements within Bulgaria's energy sector interact under various conditions. This involves constructing models that simulate energy consumption, production, and distribution patterns based on current and projected data. These models consider various factors such as economic growth, technological advancements, regulatory changes, and demographic shifts, providing a structured framework to anticipate future energy needs and capacities.

Practically, these models are implemented through detailed scenario analysis. This approach uses both quantitative methods, like mathematical modeling and simulation, and qualitative methods, such as expert interviews and workshops, to develop comprehensive narratives or stories about possible future scenarios. These narratives help stakeholders visualize the potential outcomes of different policy decisions and technological developments. In Bulgaria, scenario modeling often involves creating multiple scenarios to capture a range of possible futures, from highly optimistic to more conservative projections. This diversity allows policymakers and companies to prepare for various contingencies by understanding the impact of different variables on energy supply and demand.

An essential aspect of scenario modeling in Bulgaria is the integration of geopolitical considerations. Given Bulgaria's strategic location and historical energy dependencies, it is crucial to factor in external political and economic influences that could impact energy security and policy. This includes potential disruptions in energy imports, changes in EU energy regulations, or fluctuations in global energy prices. By incorporating these elements into scenario models, Bulgaria can better prepare for external shocks and ensure that its energy strategy is robust against a range of geopolitical outcomes.

Last but not least, the methodologies used in Bulgarian energy scenario

modeling must continually evolve to incorporate new data and insights. This involves regular updates to the models with the latest technological advancements in energy production and storage, such as solar, wind, and hydrogen technologies. It also requires adjusting economic and demographic assumptions as new information becomes available. Continuous refinement and testing of scenarios ensure that they remain relevant and useful for decision-making, helping Bulgaria to navigate the complexities of the energy transition more effectively and with greater foresight.

In Bulgaria, concrete examples of energy scenario modeling include the development of the National Renewable Energy Action Plan and the integration of the EU's Clean Energy for All Europeans package. These examples showcase practical applications of theoretical models adjusted to Bulgaria's specific context and challenges in the energy sector. The National Renewable Energy Action Plan, as part of Bulgaria's commitment to the EU's 2020 energy targets, involved detailed scenario modeling to project the potential contributions of various renewable sources like wind, solar, and biomass. Through this plan, Bulgaria aimed to increase its renewable energy consumption to 16% of its total energy mix by 2020. The scenario modeling helped identify the infrastructural investments needed, potential economic impacts, and the environmental benefits of shifting towards more renewable sources. Additionally, Bulgaria's integration of the Clean Energy for All Europeans package involves adapting EU-wide goals to the national context. This comprehensive package includes policies and regulations aimed at providing secure, sustainable, and competitive energy across the EU. In Bulgaria, scenario modeling for this integration has had to consider the country's specific reliance on coal and its energy production capacities. Models have had to project how energy efficiency measures, market designs, and renewable energy use can be increased effectively within the existing infrastructure.

These scenario models are continually updated to reflect new data and technological advancements. For example, recent models have started incorporating the potential of emerging technologies such as photovoltaic systems for individual households and the development of energy storage solutions, which could significantly alter energy consumption patterns and production strategies in Bulgaria. Through these examples, it is clear that Bulgaria is using energy scenario modeling to make informed decisions that align with both national needs and broader EU energy policies. This approach ensures that policy decisions are based on robust data and comprehensive analyses, allowing for a more effective transition to sustainable energy sources.

Incorporating Comprehensive Variables to Ensure Robust Scenarios

The development of energy scenarios in Bulgaria requires careful

consideration of a wide range of variables. These include not only technological and economic factors but also geopolitical considerations that are particularly significant given Bulgaria's strategic location and historical energy dependencies. By integrating these diverse variables, scenario models can offer a more comprehensive view of potential futures. This approach helps ensure that the scenarios are robust, taking into account the resilience of Bulgaria's energy system against various challenges, whether they are technological shifts, market changes, or geopolitical upheavals.

Assumptions and Their Role in Shaping Bulgaria's Energy Scenarios

In the context of Bulgaria's energy scenario modeling, assumptions play a pivotal role in shaping the direction and outcomes of energy policies and projections. These assumptions can cover a wide range of factors, from economic growth rates to technological advancements and energy prices, each significantly influencing the developed scenarios.

One fundamental assumption often made in Bulgarian energy scenarios is the rate of economic growth. Economic growth directly impacts energy demand as it dictates industrial activity, consumer behavior, and infrastructure development. Assumptions about higher economic growth may lead to projections of increased energy consumption and vice versa. These economic assumptions need to be aligned with realistic expectations about Bulgaria's macroeconomic environment and its integration with the EU economy to ensure that energy models are both feasible and actionable.

Technological advancement is another critical assumption in energy modeling. This includes the rate of adoption of renewable energy technologies, improvements in energy efficiency, and the development of new energy storage solutions. For Bulgaria, assumptions about the speed at which technologies such as solar, wind, and biomass can be commercially scaled and integrated into the grid are crucial. Overly optimistic assumptions about technology can lead to underpreparedness in infrastructure and policy, while conservative estimates might slow the transition towards sustainable energy sources.

Energy price fluctuations are also significant assumptions that affect Bulgaria's energy scenario modeling. These include the prices of oil, natural gas, and coal, as well as the capital and operational costs associated with renewable energy technologies. Assumptions about stable or declining fossil fuel prices might discourage investment in renewables, whereas expectations of rising costs could accelerate the green transition. Additionally, the impact of global market dynamics and geopolitical tensions on energy prices needs to be carefully considered to create robust energy scenarios.

Policy development and implementation pace are also assumed variables that influence scenario outcomes. Assumptions about the government's commitment to EU directives, such as those aimed at reducing carbon emissions and increasing energy efficiency, are integral to modeling. These assumptions affect how quickly Bulgaria can realistically expect to meet its energy and environmental goals. Uncertainties about policy continuity and effectiveness can lead to varied scenario outcomes, affecting long-term planning and investment in the energy sector.

Lastly, the public and political acceptance of energy transitions is an assumption that cannot be overlooked. The degree to which new policies and technologies are accepted by consumers and supported by various political groups can significantly influence the pace of implementation and success of energy strategies. Assumptions about societal willingness to adopt new technologies or change consumption habits can make or break the projected outcomes of Bulgaria's energy scenarios.

These assumptions necessitate a careful balance between optimism and realism, requiring ongoing adjustments as new data and trends emerge. Scenario models must be dynamic and adaptable, capable of incorporating fresh insights and changing external conditions to remain relevant and useful for decision-making.

Implications for Energy Security and Supply Diversity

The implications of energy security and supply diversity are critical for Bulgaria, particularly as it transitions from a heavy reliance on imported fossil fuels to a more diversified and sustainable energy mix. Energy security for Bulgaria is deeply tied to its ability to ensure a stable and continuous supply of energy, which historically has been heavily reliant on Russian natural gas. This dependency poses significant risks, including price volatility and geopolitical vulnerabilities. Diversifying its energy sources to include more renewable options such as solar, wind, and hydroelectric power not only mitigates these risks but also aligns with European Union directives for a sustainable and self-reliant energy future. Moreover, Bulgaria's efforts to increase its energy supply diversity are visible in recent initiatives to develop internal energy production capabilities and to participate in regional energy projects. For example, investments in domestic renewable energy projects have been ramped up to reduce the import dependency. Additionally, Bulgaria's involvement in transnational pipeline projects and electricity grid interconnections with neighboring countries helps to enhance its role in the regional energy market. These efforts aim to create a more resilient energy infrastructure that can withstand external shocks and reduce the susceptibility to disruptions in supply from any single source. Finally, the strategic geographical position of Bulgaria

offers unique opportunities for becoming an energy hub in the Southeast European region. By improving its energy storage capacities and infrastructure, Bulgaria can leverage its location to facilitate energy trade and integration within the European energy market. This not only enhances Bulgaria's energy security but also promotes regional stability and cooperation. The successful diversification of energy sources and the expansion of infrastructure to support energy connectivity are key to Bulgaria's long-term energy strategy, ensuring that the country can maintain a stable and secure energy supply while supporting its economic and environmental goals.

Renewable Energy Adoption and Sustainability Goals

Bulgaria has committed to significant renewable energy adoption and sustainability goals in line with European Union directives and its own national interests in achieving a sustainable energy future. The country has set targets to increase the share of renewable energy in its total energy mix, aiming for substantial growth particularly in solar and wind energy sectors. These efforts are part of Bulgaria's broader strategy to reduce carbon emissions and enhance energy security by reducing dependency on imported fossil fuels. The development of renewable energy not only supports environmental goals but also stimulates local economies through job creation in new green industries. The progress in renewable energy adoption in Bulgaria is supported by various government policies and incentives designed to encourage both private and public sector investment in renewable technologies. This includes favorable feed-in tariffs, grants, and tax incentives for solar and wind installations, and a regulatory framework aimed at simplifying the process of connecting renewable energy sources to the national grid. These measures are crucial for attracting investments and facilitating the growth of the renewable sector. Furthermore, Bulgaria's participation in EU-funded projects and collaborations provides additional financial and technical support, enhancing the country's capabilities to meet its renewable targets. Despite these positive steps, Bulgaria faces challenges in fully realizing its sustainability goals, such as grid capacity limitations and the need for substantial investment in grid infrastructure to accommodate a higher share of renewables. Additionally, there are economic and social challenges, including the phase-out of coal-dependent regions and the transition of the workforce into renewable sectors. Addressing these challenges requires comprehensive planning and continued commitment to policy adjustments and investments in technology and infrastructure. By tackling these issues, Bulgaria can ensure the successful integration of renewables into its energy mix and achieve its sustainability ambitions, setting a model for a balanced approach between environmental priorities and economic realities.

Policy Recommendations and Strategic Considerations

To ensure Bulgaria's successful transition towards a sustainable energy future, several policy recommendations and strategic considerations need to be implemented. First, it is crucial for Bulgaria to continue enhancing its regulatory and financial framework to encourage both local and foreign investments in renewable energy projects. This could include improved incentives for solar and wind energy developments, such as tax breaks, accelerated depreciation, and simplified procedures for project approval. Additionally, enhancing public-private partnerships can mobilize the necessary capital and expertise to expand Bulgaria's renewable energy infrastructure.

Secondly, Bulgaria should focus on building robust grid infrastructure capable of accommodating a growing percentage of renewable energy. This involves upgrading transmission and distribution networks to handle the variable nature of renewable power and integrating advanced energy storage solutions to balance supply and demand. Implementing smart grid technologies can further optimize energy use and improve the reliability of power delivery across the country. These enhancements will not only support the integration of renewables but also bolster overall energy security and efficiency.

Education and workforce development represent another critical area for policy action. As Bulgaria shifts away from traditional energy sources like coal, there is a significant need for reskilling and upskilling programs to prepare workers for jobs in the renewable sector. Government-led initiatives, in partnership with educational institutions and industry leaders, should focus on creating training programs that equip the workforce with necessary skills in renewable energy technologies, energy efficiency, and environmental management.

Environmental policy integration is also essential. Bulgaria should ensure that its energy strategies are aligned with broader environmental goals, emphasizing the preservation of biodiversity and the sustainable use of natural resources. Policies aimed at minimizing the ecological footprint of new energy infrastructure, including careful site selection for wind and solar farms to avoid disrupting natural habitats, are imperative. Moreover, adopting a circular economy approach in energy production and consumption can further reduce waste and environmental impact.

Finally, Bulgaria must enhance its international cooperation within the EU and with other global partners to share best practices, secure funding, and leverage technological innovations in the energy sector. Active participation in international energy and climate initiatives can also help Bulgaria align

its national policies with global standards and commitments, ensuring that the country remains at the forefront of sustainable development trends. These strategic international collaborations can also mitigate geopolitical risks associated with energy imports and enhance Bulgaria's energy independence.

Implementing these policy recommendations requires a cohesive strategy that considers economic, environmental, and social factors to ensure a balanced and sustainable transition to a greener energy landscape in Bulgaria.

Risks and Vulnerabilities

The intricate dynamics of geopolitics deeply influence the energy transition in Bulgaria and the broader European Union, introducing a range of risks and vulnerabilities that could impact the shift towards sustainable energy practices. Geopolitical tensions, particularly those related to energy supply chains, can lead to significant disruptions. Such disruptions are not only a matter of energy supply shortage but also affect the stability and affordability of energy markets across the region. For countries like Bulgaria, heavily dependent on energy imports, any geopolitical instability in supplier countries can have immediate and severe consequences on national energy security.

Moreover, the EU and Bulgaria's drive towards achieving climate neutrality includes an increased reliance on renewable energy technologies, which in turn depends heavily on critical minerals such as lithium, cobalt, and rare earth elements. These materials are essential for manufacturing solar panels, batteries, and wind turbines. The supply of these minerals is concentrated in a few countries, some of which are politically unstable or maintain complex trade relationships with the EU. This creates a new layer of dependency that could be manipulated in geopolitical terms, posing a substantial risk to the sustainability and independence of Bulgaria's energy transition.

Addressing these vulnerabilities requires a multifaceted approach that integrates geopolitical risk assessment into the core of energy planning and policy-making. Bulgaria, along with other EU nations, needs to develop robust strategies that enhance energy resilience. This might include diversifying energy sources to reduce dependency on a single type or source of energy, investing in domestic capabilities for the production of renewable energy technologies, and securing stable and sustainable supply chains for critical minerals. Furthermore, strategic stockpiling of essential resources and fostering strong international alliances can mitigate risks associated with supply disruptions.

Strategic geopolitical engagement is also paramount. Bulgaria must

navigate its relationships with both traditional and potential new energy partners carefully, balancing national interests with broader EU policies. This includes engaging in diplomacy that not only secures energy needs but also supports broader sustainability and climate goals. Additionally, regulatory frameworks should be adapted to encourage investment in renewable energy and technology development, reducing external dependencies and boosting local economic resilience.

In summary, the transition to a green energy economy, while essential, is fraught with complex geopolitical implications that require careful, strategic handling. Bulgaria's approach must be proactive, well-informed, and comprehensive, ensuring that its path towards energy sustainability is resilient against the backdrop of global political fluctuations. This will be crucial in safeguarding the nation's energy future and contributing effectively to the EU's climate objectives.

Conclusion

In conclusion, this paper highlighted the most important aspects of energy modeling in the context of current geopolitical changes. It has scrutinized the recent geopolitical developments and assessed their significant impacts on the energy strategies of the European Union and Bulgaria, emphasizing the critical interplay between geopolitical dynamics and sustainable energy transition strategies. The discussion has centered on enhancing the realism in energy scenario modeling by incorporating comprehensive geopolitical considerations. This enriched approach has helped delineate the broader implications for future energy trends within the EU and Bulgaria, ensuring that our insights are grounded in practical and strategic realities. By evaluating how these refined scenarios align or diverge from the overarching goals of the green transition within a geopolitical framework, we have unearthed key insights into potential pathways and challenges ahead. The strategic recommendations derived from our analysis serve as crucial guidelines for policymakers. These recommendations focus on fortifying the resilience and adaptability of energy systems against geopolitical uncertainties, advocating for a strategic blend of energy diversification, robust policy frameworks, and enhanced international collaboration. Such proactive measures are essential for securing a sustainable energy future that supports both environmental sustainability and geopolitical stability. This paper underscores the necessity for dynamic and responsive energy policy frameworks that adapt to the evolving geopolitical and environmental landscapes. As we move forward, it is imperative that energy modeling and policy development remain agile, continuously integrating new data and insights to effectively support the EU and Bulgaria's ambitions for a resilient and sustainable green transition.

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AZERBAIJAN'S ROLE IN EU ENERGY SECURITY AFTER FEBRUARY 24, 2022

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Introduction

2022 was a watershed year for EU's energy security. Lockdowns by European governments to combat the spread of COVID-19 led to an economic downturn and reduced demand for energy resources in 2020-2021.

By early 2022, this downturn had already been overcome and Europe once again needed import of large quantities of oil, gas and coal. It was then, on February 24, 2022, that Russia began its invasion of Ukraine. Russia's aggression on Ukraine led to serious changes in the posture of energy supplies for the countries of the European Union. The EU imposed sanctions on Russian oil, which came into effect on December 5, 2022.

In parallel, in the spring and summer of that year, on orders by the Kremlin, Gazprom stopped supplying natural gas to most of its European customers. These circumstances created serious difficulties for the provision of sources of oil and gas for EU countries. Thus, in the fall of 2022, natural gas prices on the spot market in Europe reached record high values.

Azerbaijan was one of the first countries that Europeans looked to in their quest to secure additional quantities of oil and gas. This is due to three reasons. First, by 2022, Azerbaijan was already an established supplier of energy resources to Europe. Second, the Caucasian republic is relatively close to the EU. And third, Azerbaijan has had the potential to be not only a producer, but also a transitor of oil and gas coming from the eastern shore of the Caspian Sea.

On this ground, the current article focuses on the process of the gradual increase of gas supplies from Azerbaijan to the EU in the period 2022-2024 and to propose a forecast for the future volumes and routes for the export of Azerbaijani gas to Europe.

How much is Azerbaijani gas and how important is it to the EU?

As sanctions against Russian oil did not come into effect until the end of 2022, in the first months after Russia's invasion of Ukraine, the biggest concern for EU countries was securing additional gas supplies. Azerbaijan started

exporting gas to Europe on December 31, 2020 following the completion of the Trans-Adriatic gas pipeline, which is part of a system of three consecutive pipelines, also including the South Caucasus and Trans-Anatolian pipelines. Taken together, they shape the geometry of the EU's Southern Gas Corridor.

By the beginning of 2022, only three European countries received Azerbaijani gas - Greece, Bulgaria and Italy. The deliveries were made according to long-term contracts, stipulating that Greece and Bulgaria would each buy 1 billion cubic meters (bcm) of gas per year from the second phase of the development of the Shah Deniz field in Azerbaijan, and Italy - 8 bcm. In 2021, Azerbaijan delivered in the EU 8.1 bcm, with expectations that the agreed volume of 10 bcm would be reached in 2022.

Immediately after February 24, 2022, individual EU countries, as well as the European Commission, began to explore the possibilities of additional gas supplies from Azerbaijan. This logically led to the visit of European Commission President Ursula von der Leyen to Baku in July 2022, where she signed a Memorandum of Understanding with Azerbaijani President Ilham Aliyev. This document states: "The Sides aspire to support bilateral trade of natural gas, including through exports to the European Union, via the Southern Gas Corridor, of at least 20 billion cubic meters of gas annually by 2027, in accordance with commercial viability and market demand"¹⁴⁷. Practically, this means that within 5 years the supplies of Azerbaijani gas have to double. The year 2027 is not accidental, this is the deadline in which the European Union plans to give up Russian gas. By then, it is assumed that enough new terminals will be built in Europe to receive LNG, and pipeline supplies from Norway, Algeria, Libya and Azerbaijan will also increase.

However, in the spring and summer of 2022, Russia counterattacked on the energy front. In a bid to trigger a crisis in the EU, President Putin ordered Gazprom to cut gas supplies to most of its European customers. Among them was Germany, which until then was the largest buyer of Russian gas. In practice, by the fall of 2022, Russia has stopped supplying gas to customers who until then bought a total of about 125 bcm per year.

Certainly, Azerbaijan alone is not able to fill such a huge gap in the European gas market. Reserves in the country's largest field, Shah Deniz, are estimated at 1 trillion cubic meters, but extraction is not easy, as the gas lies beneath the bottom of the Caspian Sea. This field was discovered in 1999. Its area is about 860 sq. km. Gas production from Shah Deniz began on December 15, 2006, and by the end of March 2024, total production was 216 bcm.

¹⁴⁷ EU agrees deal with Azerbaijan to double gas exports by 2027. Euronews, 18.07.2022; <https://www.euronews.com/my-europe/2022/07/18/von-der-leyen-heads-to-azerbaijan-to-secure-new-gas-import-deal>

It should be noted that the consortium developing the Shah Deniz field has a composition that reflects the geopolitical balances in the region. Initially, two European companies - the British BP and the Norwegian Statoil - played a leading role in it. Later the Norwegians withdrew and by 2024 the distribution of shares in the consortium was as follows: BP (operator of the project) – 29.99%, Azerbaijan through CJSC Southern Gas Corridor – 21.02%, Russian LUKoil – 19.99%, Turkish TPAO – 19% and Iranian state oil company NICO – 10%. With special permission from Washington, the Shah Deniz project is exempt from US sanctions against Iran.

Gas production from Shah Deniz has now almost reached its peak and will begin to gradually decline towards the end of the 2020s. Azerbaijan also has some other smaller deposits, the development of which is underway or to be in the future. In July 2023, the gas production from Absheron began. Initially, it is planned to be 1.5 bcm per year, but it is expected to reach 5 bcm in 4-5 years. About 2 more bcm can be added from the deep-lying gas reservoirs of the Azeri-Chirag-Deepwater Gunashli oil field. Production from the Umid field could also rise by 1 bcm per year. Overall, Azerbaijan can increase gas production by about 8-9 bcm per year, but a slight increase in domestic consumption is also expected - from 13.5 to 15 bcm per year. This means that exports to the EU will grow, but the 20 bcm target by 2027 is unlikely to be met.

In 2022, the sales of Azerbaijani gas to the EU increased by about 40% compared to the previous year and reached 11.4 bcm. In 2023, Azerbaijan increased supplies to EU countries a little more, reaching 12 bcm¹⁴⁸ (according to other data the exact number is 11.8 bcm) – some figures in this relation are presented below.

Table. Exports of Azerbaijani gas to EU countries in 2023

Country	Volume, in billion cubic meters	Compared to 2022	Value (2023), in thousand dollars
Italy	10,705	+30,4 %	8 052 416
Bulgaria	1,275	+3,5 times	470 340
Greece	1,117	+43,4 %	900 286
Romania	0,184	-	171 246

*Source: The State Customs Committee of the Republic of Azerbaijan*¹⁴⁹

In parallel, the total volume of Azerbaijani gas sold to non-EU countries

¹⁴⁸ Joint statement: 10th ministerial meeting of the Southern Gas Corridor Advisory Council and 2nd ministerial meeting of the Green Energy Advisory Council. European Commission. 1.03.2024;

https://energy.ec.europa.eu/news/joint-statement-10th-ministerial-meeting-southern-gas-corridor-advisory-council-and-2nd-ministerial-2024-03-01_en

¹⁴⁹ Exports of Azerbaijani gas in 2023. Caspian Barrel, 25.02.2024; https://caspianbarrel.org/ru/2024/02/eksport-azerbajdzhanskogo-gaza-v-2023-godu/?fbclid=IwAR0ufTTWkHFYqFo2tDXqLj0Ndl9sZmYL5f1pZK2LyCM28D6Z6NKfri_TU5Y

- Turkey, Georgia and Russia - is almost the same. This means that some reserves for increasing the supply from Azerbaijan to Europe by reallocating the volumes intended for export are still available. Thus, it is possible, for example, that cheaper Russian gas will push some of the Azerbaijani gas out of the Turkish market.

There has been much speculation about the possibility that Azerbaijan could procure additional gas from its neighbors Russia, Iran and Turkmenistan, allowing it to meet its commitment to double supplies to the EU. A triangular natural gas exchange deal was concluded between Azerbaijan, Iran, and Turkmenistan on November 28, 2021. The agreement provides for the supply between 1.5 and 2 bcm of Turkmen gas to Azerbaijan per year. Deliveries began in early January 2022. The deal comes with some geopolitical complications because of US sanctions against Iran, but in this case, as with the development of Shah Deniz, Washington has given the green light. Swap supplies of Turkmen gas in transit through Iran do not violate anti-Iranian sanctions, U.S. Ambassador to Turkmenistan Matthew Klimow said at a press conference in Ashgabat on January 2024¹⁵⁰.

In November 2022, Baku disclosed an agreement with Russia's state gas producer and exporter Gazprom to supply a total of 1 bcm of Russian gas to Azerbaijan until March 2023. The deal reportedly allows Azerbaijan to fulfil its domestic energy needs while simultaneously meeting its export obligations to Europe using its own gas resources¹⁵¹. However, in reality, Russian gas imported into Azerbaijan is in insignificant volumes - in 2023 it is 801 million cubic meters (mcm). Nonetheless, during the same period, Azerbaijan also exported gas to Russia - 327 mcm, which means that the net import of Russian gas is below 500 mcm.

More significant is the import from Turkmenistan via Iran – 1,517 bcm for 2023. The average price of Russian gas bought by Azerbaijan is \$179 per 1000 cubic meters, and that from Turkmenistan cost \$144¹⁵². This is much lower than the average price of gas on European trading platforms in the same year.

One should note that the import of Russian and Turkmen gas to Azerbaijan

¹⁵⁰ USA: Swap supplies of Turkmen gas to Azerbaijan via Iran do not violate sanctions. Caspian Barrel, 16.01.2024; <https://caspianbarrel.org/en/2024/01/usa-swap-supplies-of-turkmen-gas-to-azerbaijan-via-iran-do-not-violate-sanctions/>

¹⁵¹ Azerbaijan keeps trade option open amid sanctions busting accusations. Euroactiv, 27.03.2024; <https://www.euractiv.com/section/azerbaijan/news/azerbaijan-keeps-trade-option-open-amid-sanctions-busting-accusations/>

¹⁵² In January 2024, Azerbaijan increased imports of Turkmen gas by 2.5 times. Caspian Barrel, 02.04.2024; <https://caspianbarrel.org/en/2024/04/in-january-2024-azerbaijan-increased-imports-of-turkmen-gas-by-2-5-times/>

will hardly create serious political problems between Baku and Brussels. Currently, the imports from Russia concern small quantities, which are not re-exported to Europe, but remain in Azerbaijan as to balance the larger consumption during the winter season. And the European Union itself has not yet introduced any bans on the import of Russian gas. Another issue is that 20% of the gas from Shah Deniz is actually owned by the Russian company LUKoil.

How - thanks to Azerbaijani gas- Bulgaria coped even after the suspension of supplies from Gazprom

If one analyzes the situation in the EU countries, it should be noted that Azerbaijani gas plays the biggest role in the energy security of Bulgaria, which has a relatively small gas market and was also one of the first to which Gazprom cut supplies.

The contracts for Azerbaijani gas stipulate that Italian and Greek buyers pay at a price linked to the PSV hub in Italy, and for Bulgaria the price depends on a basket of oil products. Therefore, in 2021-2023, it was much more profitable for the Bulgarian company Bulgargaz to buy Azerbaijani than Russian or liquefied gas - the former was significantly cheaper.

Nevertheless, it was not until October 1, 2022 that Bulgargaz could take full advantage of the contract to purchase gas from the Shah Deniz field, as the Greece-Bulgaria gas interconnector (IGB) had not yet been built. In this situation, an agreement was signed that by the end of September 2021, Bulgaria was going to receive only one third of the agreed volume of Azerbaijani gas via the reserve route through the Kulata-Sidirokastro entry point. However, in the autumn of 2021 it became clear that the IGB was not yet ready, which required the signature of a second agreement with a deadline of 30 June 2022. This was followed by another failure to meet the deadline for the completion of the IGB, which necessitated an extension of the period for the use of the route through Kulata-Sidirokastro until October 1, 2022. Meanwhile, in the months of July, August and September 2022, the price of Azerbaijani gas for Bulgaria was about 4 times lower than that of the spot market in Europe¹⁵³.

Finally, the IGB became operational from the beginning of October 2022 and this enabled the supply of Azerbaijani gas to Bulgaria to reach the agreed volume and help to successfully meet the heating season. In 2023, Bulgargaz purchased 991 mcm (10,457,306 MWh) of Azerbaijani gas

¹⁵³ Bulgaria on air tv. Oporni hora program. Interview with Nikolay Pavlov, 17.12.2022; <https://www.bgonair.bg/a/172-oporni-hora/289193-nikolay-pavlov-do-kraya-na-yanuari-mozhe-da-poluchim-cestitka-ot-gazprom-za-arbitrazh>

delivered through the Greece-Bulgaria interconnector¹⁵⁴. However, additional volumes of Azerbaijani gas enter the Bulgarian market through the territory of Turkey.

Thus, in total, for 2023, supplies from Azerbaijan reach 1.25-1.27 bcm. This is almost half of Bulgaria's consumption, which has decreased significantly and is falling to its lowest level for the last 13 years. During the months outside the heating season, Azerbaijani gas significantly exceeds 50% of Bulgarian imports. Part of these volumes were sold directly on the free Bulgarian market by the Azerbaijani company SOCAR, which has a license to trade natural gas in Bulgaria. Thanks to supplies from Azerbaijan, in 2023 Bulgaria became a transit country for non-Russian gas for the first time. Small volumes of Azerbaijani gas were delivered to Romania and Moldova.

In May 2024, President Ilham Aliyev met in Baku with his Bulgarian counterpart Rumen Radev and stated that he expected gas supplies from Azerbaijan to Bulgaria to reach 1.5 mcm this year¹⁵⁵.

Azerbaijan's gas expansion in South-Eastern and Central Europe

In the months after February 24, 2024, Azerbaijan gradually expanded the geography of its gas supplies to the European continent. SOCAR entered into an agreement with the Romanian company Romgaz S.A. on December 16, 2022 for the supply of Azerbaijani gas starting in 2023. The spot short-term contract provided for SOCAR to supply up to 300 mcm from January 1 through April 1, 2023. SOCAR and Romgaz S.A. signed new agreement on Azerbaijani gas supplies to Romania on February 3, 2023 for up to 1 bcm during the 2023-2024 period. Most probably the agreement will be prolonged¹⁵⁶. Moldova also relies on receiving Azerbaijani gas through Bulgaria and Romania. The first deliveries were already made in the winter of 2022-2023.

In November 2023, an agreement was signed in Baku with Serbia, which is in the process of accession negotiations to the EU. It envisages Azerbaijan supplying up to 400 million cubic meters of gas per year until 2026, and a billion meters a year after that¹⁵⁷. It is planned that supplies will be made through the Southern Gas Corridor and through the newly built gas interconnector Bulgaria-Serbia, which has become operational since the end of 2023.

¹⁵⁴ Report on the Activity of the Commission for Energy and Water Regulation in the Year 2023, p. 65; https://www.dker.bg/uploads/2024/Godishen_Doklad_web_22032024.pdf

¹⁵⁵ Azerbaijan, Bulgaria Ink Strategic Partnership to Boost Bilateral Ties. Caucasus Watch, 12.05.2024; <https://caucasuswatch.de/en/news/azerbaijan-bulgaria-ink-strategic-partnership-to-boost-bilateral-ties.html>

¹⁵⁶ Azerbaijan's state oil company ready to ship gas to Romania through 2026. Interfax, 1.04.2024; <https://interfax.com/newsroom/top-stories/100942/>

¹⁵⁷ Serbia Signs Natural Gas Deal With Azerbaijan. Balkan Insight, 15.11.2023; <https://balkaninsight.com/2023/11/15/serbia-signs-natural-gas-deal-with-azerbaijan/>

From the end of 2023, Hungary also started receiving small volumes of Azerbaijani gas, and the supply is expected to increase. Hungary maintains close political ties with Azerbaijan and Turkey through the Organization of Turkic States (OTS), with Turkey and Azerbaijan as permanent members and Hungary as an observer.

At the beginning of May 2024, Slovakia's Prime Minister Robert Fico traveled to Baku, where possible future deliveries of Azerbaijani gas to Slovakia were discussed¹⁵⁸. A potential buyer of Azerbaijani gas is also Albania, which does not yet have a developed gas supply network, but the Trans-Adriatic gas pipeline passes through its territory, through which gas from Shah Deniz reaches Italy.

On this ground, it is clear that the requests of the countries of South-Eastern and Central Europe for purchases of Azerbaijani gas exceed the export possibilities of Azerbaijan. According to SOCAR Deputy Vice President Vitaly Beglyarbekov by the year 2026, Azerbaijan plans to increase the annual volume of gas exports to Europe by only 17% from 2023 to 14 bcm. He notes that a further increase in Azerbaijani gas supplies to Europe to 20 bcm per year will largely depend on the needs of the region and the willingness of the European side to invest in new infrastructure¹⁵⁹.

Objectively, it is more likely that the additional volumes of Azerbaijani gas that will appear in Europe in the coming years will be directed to the so-called Vertical gas corridor that will connect Greece and Turkey with Central Europe. For this purpose, no new large pipelines will be built, and the existing gas transmission infrastructure will be expanded and upgraded where necessary. The horizontal European route for the transfer of Azerbaijani gas in the east-west direction via the Trans-Adriatic pipeline will be preserved, but its capacity will probably be increased only marginally.

Long-term vs. short-term contracts

One of the main problems facing the future export of Azerbaijani gas to the EU countries is the discrepancy in the expectations of sellers and buyers regarding the term of supply contracts. Those, concluded in 2013 with Greece, Bulgaria and Italy are for 25 years. Now the situation is quite different. Although in the short term the EU needs additional volumes of gas to replace lost Russian supplies, it is more likely that gas consumption in a decade will

¹⁵⁸ Slovakia targets Azeri gas imports to replace Russian supplies. Upstream online, 9.05.2024; <https://www.upstreamonline.com/energy-security/slovakia-targets-azeri-gas-imports-to-replace-russian-supplies/2-1-1641546>

¹⁵⁹ Azerbaijan to boost gas exports to Europe by 17% by 2026 – Socar. Montelnews, 09.04.2024; <https://montelnews.com/news/16786f15-0cc4-4169-90e9-5a896216c4f1/azerbaijan-to-boost-gas-exports-to-eu-by-17-by-2026-socar>

be lower than current levels. That is why the European Commission does not encourage the signing of long-term contracts, which Azerbaijan needs to invest in increasing gas production. The EU no longer allocates grants for the construction of gas transmission infrastructure. Thus, most of the additional volumes of Azerbaijani gas to Europe will be sold either under short-term contracts or on the spot market.

Azerbaijan would not be able to significantly increase its oil exports to Europe, because even before February 24, 2022, more than half of its oil went to EU countries. However, the Baku-Tbilisi-Ceyhan oil pipeline could become an important route for oil supplies from Kazakhstan, as so far more than 85% of Kazakhstan's oil exports pass through the territory of Russia. For this purpose, it is necessary to create a large tanker fleet in the Caspian Sea to transport oil from Kazakhstan to Baku.

Some political problems cast a shadow over the intense trade in energy resources between Azerbaijan and the EU. In September 2023, Azerbaijan managed to regain control of Nagorno-Karabakh after a lightning military operation. A mass exodus of almost the entire Armenian population of this region followed. In October, the European Parliament adopted a resolution calling on the EU to reduce its dependency on Azeri gas imports¹⁶⁰. However, this resolution has no binding force and does not commit the European Commission and the European Council to any actions. In March 2024, during his visit to Baku, NATO Secretary General Jens Stoltenberg noted Azerbaijan's role in the energy security of NATO countries and pointed out that for some allies, gas from Azerbaijan is very important¹⁶¹.

Conclusion

In principle, it should be noted that Azerbaijan has a significant, though not a major, role in alleviating the gas crisis in the EU that arose after Russia's attack on Ukraine. Objectively, Azerbaijan's gas production is not large enough to replace even a tenth of the lost Russian supplies and to seriously affect prices on European trading platforms.

However, the gas from Azerbaijan helps the countries of Southeast Europe, which had small energy markets, to cope with the difficult situation. First of all, this applies to Bulgaria and to a lesser extent to Greece and Italy, which is a large gas consumer.

¹⁶⁰ Nagorno-Karabakh: MEPs demand review of EU relations with Azerbaijan. European Parliament, 5.10.2024; <https://www.europarl.europa.eu/news/en/press-room/20230929IPR06132/nagorno-karabakh-meps-demand-review-of-eu-relations-with-azerbaijan>

¹⁶¹ Azerbaijan is important for NATO because of energy security – Stoltenberg. Trend, 18.03.2024; <https://en.trend.az/azerbaijan/business/3876121.html>

The gas connection makes Azerbaijan a strategic partner of the EU, although the authorities in Baku have never expressed a desire for political rapprochement and integration within the European Union. At the same time, the exit to the solvent European market is a serious geo-economic success for Azerbaijan. In 2022, the country receives 15.6 billion euros from gas sales in the EU, and in 2023 – just over 10 billion euros. These are serious revenues that compensate for the declining oil exports from the country. After all, energy cooperation between the EU and Azerbaijan is proving to be mutually beneficial, and that means it will deepen.

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THE ENERGY SECTOR OF MOROCCO – NATIONAL, REGIONAL AND EUROPEAN DIMENSIONS

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I. Introduction

The electricity sector in Morocco showcases a dynamic mix of public and private entities engaged in various activities such as production, transmission, and distribution to cater to the nation's electricity demands. By the end of 2022, the country boasted a production capacity of 10,830 MW, with key players including the National Office of Electricity and Drinking Water (ONEE), the Moroccan Agency for Sustainable Energy (MASEN), Independent Power Producers (IPPs), and self-producers. Transmission infrastructure, including interconnections with neighboring countries, plays a vital role in ensuring efficient and reliable electricity supply across different regions. Significant investments have been made in the transmission network, reflecting Morocco's commitment to meet the increasing energy demand spurred by rural electrification and economic growth.

Morocco's energy strategy, initiated in 2009, focuses on a diversified and optimized energy mix, emphasizing renewable energy sources, energy efficiency, and sustainable development. The successful implementation of the strategy's first phase has paved the way for a historical transition towards increasing the share of renewables in the electricity mix to over 52% by 2030. In line with this trajectory, Morocco unveiled a New Development Model (NDM) in 2021, aiming to accelerate the energy transition process and enhance economic competitiveness and sustainability.

Solar and wind energy have emerged as a significant component of Morocco's renewable energy landscape, positioning the country as a leader in the Middle East and North Africa region. Lessons from Morocco's power sector institutional arrangements underscore the importance of selective and incremental reforms, tailored to the country's context, to navigate legacy challenges and stakeholders' interests effectively. Furthermore, Morocco's ability to pursue socio-economic objectives within the power sector is facilitated by its strong economic growth and a sizable consumer base.

The involvement in regional energy initiatives, such as the Morocco-Nigeria Gas Pipeline and the Morocco-UK Power Project, showcases Morocco's

dedication to bolstering regional economic collaboration and maximizing its geographical strengths. Moreover, recent endeavors like allocating 1 million hectares to green hydrogen projects underscore Morocco's proactive role in advancing global energy transition endeavors.

Morocco enjoys strong partnerships with major financial institutions and international stakeholders, facilitating access to financing and investments crucial for advancing its energy strategy. Furthermore, the country seeks to strengthen bilateral cooperation, as evidenced by recent engagements with Bulgaria, particularly in priority areas such as energy cooperation and regional integration.

Further, Morocco continues actively to develop its relations in the energy field with the European Union along common priorities. In this relation, the EU-Morocco partnership focuses on common challenges such as economic development, innovation, climate change, security, good governance etc.

As Morocco continues its journey towards a sustainable energy future, characterized by renewable energy expansion, regional cooperation, and international partnerships, it stands as a beacon of progress and innovation in the global energy landscape.

II. Major characteristics of Morocco's Energy Sector

The electricity sector in Morocco is characterized by a diversity of actors, both public and private, operating in various activities (production, transmission, and distribution) to meet the electricity needs of customers.

A. Production

National electricity production is ensured by a production capacity of 10,830 MW by the end of 2022. The main producers are:

- **National Office of Electricity and Drinking Water (ONEE):** ONEE has been the main player in the electricity sector since 1963. It is a public entity of a commercial and industrial nature, under the administrative and technical supervision of the Ministry of Energy Transition and Sustainable Development.

- **Moroccan Agency for Sustainable Energy – MASEN:** MASEN is a limited company with a board of directors and a supervisory board, named "Moroccan Agency For Sustainable Energy", established under law 57-09 in 2010, and under the administrative and technical supervision of the Ministry of Energy Transition and Sustainable Development. MASEN's main objective is to carry out, under an agreement with the State, a program to develop

electricity production projects from renewable energy sources based on multi-year planning of electricity production capacities.

- **Independent Power Producers (IPPs):** Private companies have been authorized since 1994 to produce electrical energy, exclusively for ONEE's needs. They are connected to ONEE and MASEN through long-term guaranteed electricity purchase contracts of the "Power Purchase Agreement" (PPA) type.

Currently, the concessionaire electricity producers are:

- Jorf Lasfar Energy Company JLEC (2080 MW);
- Théolia (CED) (54MW);
- Electric Power Company of Tahaddart EET (384 MW);
- Tarfaya Energy Company (300 MW); and
- SAFI Energy Company (SAFIEC) (1386 MW).

Electricity produced by IPPs and MASEN is acquired in full by ONEE under the conditions and according to the modalities set forth in contractual agreements.

Under Article 2 of Dahir No. 1-63-226 of 1963 establishing the National Electricity Office as amended and supplemented, self-producers can produce electrical energy, in one of the following cases, mainly for their own use, and the surplus is sold exclusively to ONEE:

- The production capacity to be installed by the producer does not exceed 50 MW;
- The production capacity is greater than 300 MW, with the right of access to the national electricity grid to transport electrical energy from the production site(s) to the consumer site(s) of the producer.

A draft law on electrical self-production was approved by Parliament on February 7, 2023. This draft law aims to organize the activity of electrical self-production.

B. Electricity Transmission

Electric transmission, including electrical interconnections with neighboring countries, is considered one of the vital and important strategic activities of the electrical system aiming to ensure the supply of different regions of the Kingdom with electricity under the best conditions of safety, efficiency, and quality.

The total length of electrical transmission lines reached 28,352 km by the end of 2021, and the number of electrical transformers is 543 with a total capacity of 27,377 MVA. This network has also seen significant investments since the launch of the national energy strategy in 2009, amounting to 14.4 billion dirhams until the end of 2022. The national demand for electrical energy has increased on average by 4.12% per year between 2009 and 2022 due to the almost universal rural electrification and the dynamism of the economy, especially the policy of major projects in infrastructure, industry, agriculture, tourism, social housing, etc.

To meet this growing energy demand, an energy strategy was adopted in 2009, under the High Directions of His Majesty King Mohammed VI, which is based on the following orientations:

- A diversified and optimized mix around reliable and competitive technological choices,
- Mobilization of national resources through the increase in renewable energies,
- Energy efficiency erected as a national priority,
- Reinforcement of regional integration,
- Sustainable development.

This strategy has been translated into a roadmap, which is reflected in clear and precise plans, programs, and projects. The first phase of the national energy strategy was successfully implemented and restored the balance between electricity supply and demand, and established the legislative, institutional, and regulatory reforms necessary to support the programs and projects launched as part of the national energy strategy. Thus, the national energy strategy has experienced a historical turning point aiming at increasing the share of renewable energies in installed electrical capacity to more than 52% by 2030.

Subsequently, Morocco adopted a New Development Model (NDM) in 2021 with the aim of accelerating its energy transition process and enabling it to best meet its needs in terms of economic competitiveness and sustainability. This NDM provides for:

- Decentralized electricity production;
- Strong, independent, and transparent regulation;
- Separation of roles of actors (Production, Transport, Distribution);
- Responsible liberalization of the sector;

- Generalization of access to energy at competitive prices.

To support these energy projects, evacuate the energy produced, and ensure its transport under the best conditions of safety and efficiency, the electric transmission network has been developed, strengthened, and extended with the completion of 769 km of high and very high voltage electrical lines during the year 2021.

C. Wind energy development in Morocco: Evolution and impact

Over the past ten years, Morocco has been focusing on developing renewable energy, especially wind power. This new energy policy has enabled it to become, in 2017, the leading country in the Middle East and North Africa region and the second one in Africa in terms of installed wind power capacity. In 2019, Morocco moved for the first time from the status of electricity importer to that of electricity exporter, better yet green electricity.

D. Dedication of 1 million hectares to green hydrogen projects

On March 11, 2024, Morocco announced a major initiative to dedicate 1 million hectares to green hydrogen projects, following the directives of King Mohammed VI. The plan, known as the “Morocco Offer,” will initially allocate 300,000 hectares to attract investors interested in producing green hydrogen through electrolysis powered by renewable energy sources. This move is part of Morocco’s strategy to play a significant role in global energy transition efforts.

The initiative covers various aspects including electricity generation from renewables, electrolysis, and the conversion of green hydrogen into other products like ammonia and methanol. The government aims to provide both domestic and export opportunities for investors and offers incentives to facilitate investment.

The plan also emphasizes the importance of infrastructure development, transparent governance, and regular assessment of project progress. With nearly 100 investors showing interest, Morocco seeks to leverage its natural resources and geographic location to accelerate its energy transition, aiming to increase renewables in its electricity mix to 52% by 2030 from 37.6% now, made up of 20% solar, 20% wind and 12% hydro.

III. Lessons from Morocco’s Power Sector Institutional Arrangements

There are at least three lessons for developing countries from Morocco’s experience:

- First, Morocco pursued reforms in a selective and incremental manner in an environment where legacy entities can obstruct sudden and far-reaching reforms. For instance, policy makers were selective in their approach to privatizing electricity distribution, through concessions to AMENDIS, LYDEC and REDAL, that reinforced existing territorial monopolies, rather than full or partial divestiture of municipal utilities. In the development of renewable energy, grid access was slowly granted to renewable energy producers. This gradualism minimized disrupting the influence and market share of stakeholders like ONEE, certain ministries and the distribution companies.

Second, institutional arrangements in Morocco are different from those prescribed by the 1990s power sector reform model, but nonetheless perform the necessary functions in practice. In expanding electricity access for instance, ONEE played a coordination role for domestic and international stakeholders. This aligns with findings of the [World Development Report 2017](#) on Governance and the Law and broader research that the functions that institutions perform matter more than the form they take. Thus, Morocco's power sector institutional arrangements performed the necessary commitment, coordination and cooperation functions to achieve objectives of attracting private investments to boost installed generation capacity and output.

Third, Morocco was able to pursue socio-economic objectives in the power sector due to its strong and growing economy. There are cross-subsidies between electricity and water services at the municipal level, between urban and rural customers, and between different urban customer groups. This has been possible due to the country's strong economic growth averaging 4.2 percent over the past two decades, and a relatively large population of electricity consumers with the ability to pay. Despite a strong economic base, these socio-economic considerations have taken their toll on the financial health of ONEE, which has nonetheless proved capable of balancing these conflicting considerations.

As efforts accelerate to provide electricity to the over 800 million people lacking electricity access around the world, and predominantly in Africa, it is essential to define the priority policy objectives and structure sector reforms around those. The institutional pathways to achieving these objectives will vary by country context but can be guided by the general principles of effective governance in terms of efficiency, sustainability and equity in the power sector.

IV. Morocco's Major financial development partners

Morocco enjoys excellent reputation with major bilateral, regional and multilateral financial institutions such as:

- the African Development Bank, the European Union through its two arms European Investment Bank & EBRD), Members of the Arab Coordination Group (IsDB, AFESD, Saudi Arabia, Koweit, UAE, OPEC Fund etc.) and

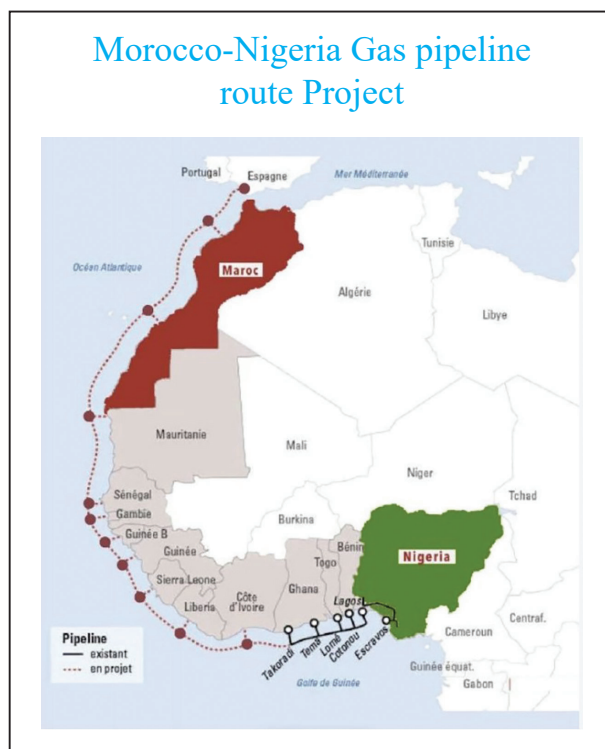
- the IMF, the World Bank Group, (IBRD & IFC) etc.

Concrete financial partnership with countries like USA, France, UK, Japan, China, India, Spain etc. is also in place.

Morocco is considered by its development partners as a “Bankable” country who has **never** defaulted in meeting his financial obligations and in reimbursing its external debt despite the various global financial crisis of 2008-2009, the Covid pandemic and the ongoing conflicts in Ukraine and Gaza.

This positive country’s profile in terms of its rating, its robust financial position, the remittances of its diaspora, its qualitative infrastructures and qualified professional force labor constitute major positive economic indicators which will ease attracting more foreign direct investments in support of the country’s domestic, regional and international energy strategy by 2030 and beyond.

V. Enhanced Regional Economic Integration with West Africa: The example of the Morocco-Nigeria Gaz Pipeline



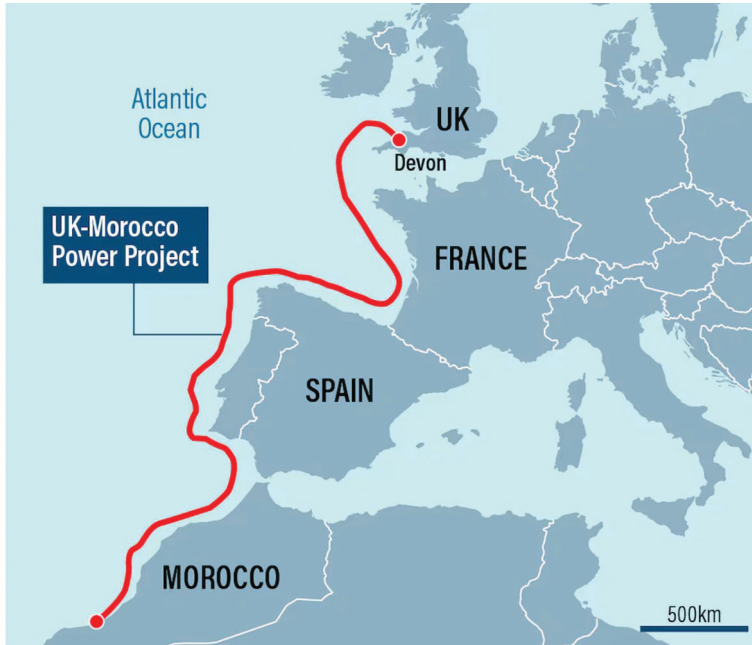
The Nigeria-Morocco Gas Pipeline project, which stems from the far-sighted vision of King Mohammed VI and Nigerian President Muhammadu Buhari, will run along the West African coast from Nigeria, through Benin, Togo, Ghana, Côte d'Ivoire, Liberia, Sierra Leone, Guinea, Guinea Bissau, Gambia, Senegal and Mauritania up to Morocco. The project will open a new energy-supply route for West Africa and Europe at a time European nations are increasingly hungry for new sources of gas following the Russian-Ukraine war. It is worth noting that Nigeria possesses Africa's largest proven gas reserves at about 200 trillion cubic feet, most of which is untapped, flared or reinjected into oil wells.

The 5,600 kilometers conduit along West Africa's coast would provide gas to the 15 West African countries members of the Economic Community of West African States (ECOWAS) and will permit the shipment of fuel to Spain and the rest of Europe through Morocco. The Islamic Development Bank (IsDB) and the OPEC Fund for International Development (OFID) committed nearly \$60 million to finance the feasibility and the engineering studies for what would be one of the longest pipelines ever built. The project is currently in the phase of detailed engineering study (FEED) and will contribute to the emergence of an integrated North-West African zone, accelerate access to energy in West Africa and also accelerate electrification projects for the benefit of populations.

The Morocco-Nigeria gas pipeline also aims to create a competitive regional electricity market, the exploitation of clean energy, the contribution to the industrial and economic development of all countries through the development of several sectors such as agriculture, industry, mining, the reduction of flaring, as well as the export of gas in Europe.

This mega-project, which crosses 13 countries on the Atlantic coast and will include 3 landlocked countries, will have a direct positive impact on more than 340 million people. The project is intended to connect with the 678-kilometer pipeline owned and operated by the West African Gas Pipeline Limited Company (WAPco), which facilitates the transportation of natural gas from Itoki, Nigeria, to Takoradi, Ghana, passing through Benin and Togo.

VI. Export of Renewable energy from Morocco to Great Britain



Morocco and the British firm Xlinks agreed to build the world's longest high-voltage undersea cable to carry renewable energy from Morocco to the UK. This project has been designated as a project of "national significance" by the British authorities.

The implementation of this innovative and strategic project of 11.5 gigawatt solar/wind project in Morocco will require 3,800km of subsea cables to supply solar and wind power from the Sahara to seven million British homes by 2030. The project will generate the electricity while four subsea HVDC cables will link it to the UK power grid in Devon, south-west England. A British renewable-power company is on track to order a super large cable-lay vessel for installation of one of the world's longest subsea power cable projects.

The Xlinks Morocco-UK Power Project will be among longest power transmission links in the world, thanks to a circuitous route that hugs the coastlines of Portugal, Spain and France. The project requires four parallel HVDC cables to carry about 3.6 GW of power capacity in two 1.8 GW links. With a route length of 2,500 miles, the total length of wire comes to about 10,000 miles.

The power will come from an 11.5 GW solar/wind project in Morocco, buffered by a 22 GWh battery storage bank. The concept is to provide dispatchable power for up to eight percent of the UK's electricity demand, filling in gaps in Britain's local wind and solar generation. The big selling point is that as expensive as it will be - \$25 billion all-in - it will still be far cheaper than a new nuclear power plant of equivalent capacity.

A sister company, XLCC, is building a cable manufacturing plant in Scotland to create the massive quantities of HVDC cable required for the project. The same firm is planning to order a cable-layer with the capacity to install it. It will be one of the largest vessels of its kind, and will be able to deploy two cables at a time as a bundled pair. In addition to deploying it for XLinks, XLCC plans to charter the vessel out to other developers on the global market. XLinks' backers (Abu Dhabi's National Energy Company, French oil major TotalEnergies and UK-based utility Octopus Energy) are planning to complete the project by 2030-31.

VII. Towards an enhanced win-win bilateral cooperation between Morocco & Bulgaria in the energy sector

During a recent official visit to Rabat held in January 2024, the Bulgarian Deputy Prime Minister and Minister for Foreign Affairs Ms. Mariya Gabriel met with the Minister of Foreign Affairs, African Cooperation and Moroccans Living Abroad, H. E. Nasser Bourita, the President of the House of Representatives of the Moroccan Parliament, Rachid Talbi Alami, and with His Majesty King Mohammed VI's advisor, André Azoulay. The Bulgarian delegation, included HEM Krastyu Krastev, Minister of Culture and HEM Plamen Tzolov, the Bulgarian Ambassador in Morocco.

On this occasion, Ms. Mariya Gabriel announced plans to establish a new dynamic and development in the partnership between the two nations. On his part, Mr. Nasser Bourita declared that Morocco sees Bulgaria as an influential member in the development of relations with the EU and neighboring countries, particularly those on the southern shore of the Mediterranean.

During the visit, a Joint Statement outlining specific areas for deepening bilateral relations and a Three-Year Program for Cooperation in Education, Higher Education, Research, Culture, Communication, Youth and Sport were signed. An Agreement for co-production and cinematographic exchange was also signed, on the basis of which a number of initiatives will be held, such as a week of Bulgarian cinema in Morocco and Moroccan cinema in Bulgaria.

In the specific case of the energy sector, the two countries could initiate a bilateral cooperation in key priority areas such as:

- Addressing the energy landscape and geopolitical context by i) investing in regional energy cooperation and interconnection with neighboring countries and Europe, ii) enhancing energy security by develop strategic oil and gas reserves, iii) increasing energy storage capacity, iv) improving grid resilience and cybersecurity, v) navigating geopolitical complexities by strengthening diplomatic ties with key energy partners, vi) advocating for regional stability and peaceful conflict resolution and vii) building partnerships for technology transfer and climate finance.

- Accelerating decarbonization by i) promoting green technologies and innovation through the investment in research and development of renewable energy technologies and energy storage solutions, ii) fostering private sector investment in clean energy projects through attractive incentives and streamlined regulations and iii) creating green jobs and training programs to prepare the workforce for the energy transition.

- Leveraging international partnerships through i) the connection with global initiatives (such as participating actively in international climate negotiations and energy forums), ii) accessing international climate finance and technology transfer mechanisms, and iii) collaborating with developed countries on knowledge sharing and capacity building; and;

- Forging regional alliances through i) strengthening cooperation with Mediterranean partners on energy projects and resource sharing and ii) participating in regional energy markets and infrastructure development initiatives.

VIII. EU-Morocco Partnership in the Energy Sector

Background

The EU-Morocco partnership focuses on common challenges such as economic development, innovation, climate change, justice, security, mobility, migration and good governance. On 9 February 2021, a new Agenda for the Mediterranean was adopted by the European Commission and later endorsed by the European Council to relaunch and reinforce the EU's partnership with the region. It is accompanied by an Economic and Investment Plan, expected to mobilize up to €8.4 billion in investments in Morocco by 2027. This includes €1.68 billion in grants from the EU budget.

The EU has been supporting Morocco's investments under the Neighbourhood Investment Platform, and more recently under the European Fund for Sustainable Development (EFSD). In particular, it has contributed to funding key infrastructures in the energy, water, and transport

sectors, in cooperation with European Financial Institutions (EIB, EBRD, AFD, KfW such as the Ouarzazate and Midelt energy farms, the urban railways in Rabat and Casablanca and the wind energy programmes in Midelt and Essaouira.

In October 2022, the European Union and the Kingdom of Morocco have consolidated their cooperation on protecting the environment, conserving biodiversity, and fighting climate change with the launch of the **EU-Morocco Green Partnership**, the first Green Partnership the EU signs with a partner country to advance the external dimension of the European Green Deal and one of the Flagships of the European Investment Plan for the Southern Neighbours.

On March 2, 2023, in an official visit in the Moroccan capital Rabat, Neighbourhood and Enlargement Commissioner Olivér **Várhelyi** announced new cooperation programmes worth €624 million in total to support Morocco's **transition to green energy**, enhance cooperation on addressing irregular migration management and support Morocco's ambitious reform plans in key areas such as social protection, **climate policy**, reform of the public administration and the judiciary systems.

The new assistance package comprises the following two programs:

- **Supporting the green transition** - the programme "**Terre Verte**", worth €115 million, aims at supporting Morocco's agriculture and forestry strategies as well as improving decent employment, 'green' entrepreneurship, and the social security coverage of workers; and
- **A €50 million programme called "Energie verte"**, aims at boosting Morocco's greening of its economy and energy sector, in line with commitments under the EU-Morocco Green Partnership.

Green Partnership

On Tuesday, October 18, 2022, the European Union and Morocco signed in Rabat a "green partnership", marking the first of its kind, aimed at enhancing energy cooperation and combatting climate change. The agreement, signed by European Commission Vice-President Frans Timmermans and Moroccan Foreign Minister Nasser Bourita, highlights Morocco's unique position as the first country to enter such a partnership with the EU. Timmermans emphasized the significance of this partnership for sustainable growth, stressing the interconnected destinies of Africa and Europe. Bourita underscored the importance of reliability in energy matters, referencing recent energy crises.

The Green Partnership between the EU and Morocco focus particularly on climate change mitigation, energy transition, environmental protection, and

the promotion of the green and blue economy. This partnership prioritizes climate action, energy transition, and environmental protection within EU-Morocco relations. It facilitates progress towards mutual goals of achieving low-carbon economies, promoting investment in green technology, renewable energy, sustainable mobility, and clean production. The partnership aims to strengthen cooperation, foster sustainable development, and promote triangular and South-South cooperation on climate and environment. It emphasizes early policy consultation and exchange, considering the interests of both parties. Additionally, the memorandum seeks to raise awareness about climate and environmental challenges, involve various stakeholders, and enhance private sector engagement in green initiatives.

Through this framework, both parties can address common interests, share knowledge, and implement mutually beneficial cooperation initiatives aligned with the goals of the Paris Agreement. Morocco's energy strategy, emphasizing renewable energy sources, aligns with this initiative, with the aim of increasing renewable energy's contribution to electricity production by 2030. Morocco is currently implementing a 50 million euro "support program for energy transition" and stands as the EU's top economic partner in Africa.

Importance of the Green Partnership on Energy” between Morocco and the European Union

The “Green Partnership on Energy” between Morocco and the EU is a significant collaboration aimed at promoting sustainable energy development and addressing climate change challenges. It was established as part of the broader cooperation between Morocco and the European Union in the field of energy and climate. It builds upon existing agreements and initiatives aimed at promoting renewable energy, energy efficiency, and climate resilience.

The primary objectives of the Green Partnership on Energy include:

- Promoting renewable energy deployment: Encouraging the use of renewable energy sources such as solar, wind, and hydroelectric power to reduce greenhouse gas emissions and enhance energy security.
- Enhancing energy efficiency: Implementing measures to improve energy efficiency in various sectors, including buildings, industry, and transportation, to reduce energy consumption and environmental impact.
- Fostering climate resilience: Supporting initiatives to enhance climate resilience and adaptation, particularly in vulnerable areas affected by climate change impacts such as water scarcity and extreme weather events.

The partnership involves various initiatives and projects aimed at achieving its objectives, including:

- Renewable energy projects: Collaboration on the development of renewable energy projects, such as solar and wind farms, to increase clean energy generation capacity and reduce reliance on fossil fuels.
- Energy efficiency programs: Implementation of energy efficiency measures and policies to promote energy conservation and reduce greenhouse gas emissions.
- Capacity building and technical assistance: Providing support for capacity building, knowledge sharing, and technical assistance to strengthen the institutional and regulatory frameworks for sustainable energy development.
- Financial support: Mobilizing financial resources and investment to support the implementation of renewable energy and energy efficiency projects in Morocco.

In recent years, the Green Partnership on Energy has seen several developments, including:

- Expansion of renewable energy capacity: Morocco has made significant progress in expanding its renewable energy capacity, particularly in solar and wind energy. Projects such as the Noor Solar Complex and the Midelt Wind Farm have contributed to this growth.
- Policy reforms: Morocco has implemented policy reforms and regulatory measures to support the integration of renewable energy into its energy mix and attract investment in the sector.
- EU funding and support: The European Union has provided financial support and technical assistance to Morocco through various programs and initiatives aimed at promoting sustainable energy development and climate action.

The EU's financial support and technical assistance to Morocco under the Green Partnership on Energy play a crucial role in advancing sustainable energy development and climate action in the country, contributing to the achievement of shared objectives and targets in the energy and climate sectors.

Overall, the Green Partnership on Energy between Morocco and the EU reflects a commitment to collaboration and partnership in addressing the challenges of climate change and transitioning towards a sustainable and low-carbon energy future.

Just Transition: Economic Incentives for Successful Climate Policy and Implementation of the Nationally Determined Contribution

Morocco's strides in renewable energy highlight the tangible reality of sustainable development. Amidst a global focus on sustainability and resilience, integrating these principles into growth strategies, especially in vital sectors like energy production, is crucial for collective prosperity.

Global greenhouse gas emissions, climate change poses a significant threat to the Morocco's growth potential. The Moroccan Government recognized this challenge and set ambitious energy transformation goals, aiming for a 52% renewable energy mix by 2030, including green hydrogen.

Continued capacity building, clean energy innovation, and impactful research and development are essential. Solutions must prioritize socio-economic impact, emphasizing human-centered initiatives. Developing infrastructures supportive of this transition requires concrete application of research, development, and innovation. Committed to a greener economic model, Morocco embarked on a significant endeavor towards a greener future with the launch of a project supporting the country's "**Just Transition**" to a **low-carbon economy**". This project, funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union (EU) with over €10 million, aims to assist Morocco in updating and implementing its Nationally Determined Contribution (NDC) under the Paris Agreement.

This project aligns with Morocco's efforts to achieve a socially and economically equitable transition to address climate challenges and its implementation will contribute to solidifying the EU-Morocco partnership on climate issues. Furthermore, the project ensures that climate policies are fair, inclusive, and offer opportunities for everyone. It will addresses updating and implementing Morocco's NDC in a socially responsible manner. Additionally, it aims to equip the private sector with the necessary tools to navigate the EU's Carbon Border Adjustment Mechanism (CBAM).

Finally, the project represents the culmination of an inclusive approach, involving various Moroccan ministries and development partners such as the World Bank, the African Development Bank, the French Development Agency, and the EU who considers Morocco's efforts in combating climate change as exemplary in Africa. Moving forward, it's imperative for the EU and the international community to continue supporting Morocco's sustainability transition, leading the country towards prosperity built on clean energy and resilience.

IX. Conclusion

In conclusion, Morocco's energy sector represents a dynamic blend of public and private entities working towards meeting the nation's electricity

demands. With a diverse array of actors engaged in production, transmission, and distribution, Morocco has steadily enhanced its infrastructure to ensure efficient and reliable electricity supply across regions.

Embracing a forward-looking energy strategy since 2009, Morocco has made significant strides in diversifying its energy mix, with a particular focus on renewable sources and sustainability. The success of its initiatives positions Morocco as a leader in the Middle East and North Africa region, setting an example for tailored, incremental reforms that address legacy challenges while prioritizing socio-economic objectives.

Moreover, Morocco's participation in regional energy initiatives, such as the Morocco-Nigeria Gas Pipeline and the Morocco-UK Power Project, underscores its commitment to fostering economic collaboration and leveraging its geographical advantages. These endeavors, alongside recent commitments to green hydrogen projects, highlight Morocco's proactive role in global energy transition efforts.

Supported by strong partnerships with international financial institutions and bilateral cooperation, Morocco continues to chart a path towards a sustainable energy future. As it moves forward, Morocco stands as a beacon of progress and innovation, contributing to the global energy landscape while enhancing regional economic integration and cooperation.

Mohamed H'Midouche, a Moroccan national and Economist, is a 45 years veteran of development banking, project finance, trade finance, project management, diplomatic representation, and leadership in various aspects of African development. Most of his career has been in senior management positions at the African Development Bank Group both in its Headquarters in Abidjan and its Representation/Field Offices in London, Cairo, Dakar and at its Temporary Relocation Office in Tunis. Mr. H'Midouche has 10 years of experience as Non-Executive Director & Board Member of several financial and non-financial pan-African institutions such as (i) Afreximbank, (ii) Alexandria Dakheela Iron & Steel Company (Egypt), (iii) Member of the Board of Directors of the African Governance Institute (AGI) based in Dakar, Senegal and (iv) Advisor and Board Member of the Global Advisory Board – IGS Group, a non-profit private institution that oversees the American Business School of Paris, an International School of Business and Management. Mr. H'Midouche has also rich experience in the sphere of diplomacy and international relations, holding positions such as Honorary Consul of Cabo Verde in Morocco; Founding Member of the "Union of Honorary Consuls of Morocco" (UCHM); Vice President of the Moroccan Institute of International Relations (IMRI) etc.

ISRAEL'S ENERGY COOPERATION IN THE EASTERN MEDITERRANEAN AND ENERGY TRANSITION

**Shmuel (Sammy) Revel –
Ambassador, Special Envoy for Energy, Ministry of Foreign Affairs,
Israel**

Building regional energy cooperation on solid foundations

Energy cooperation in the Eastern Mediterranean is growing steadily in recent years. This has already produced tangible results, most notably in the fields of natural gas, electrical interconnectivity and renewable energy. The significant natural gas discoveries in the Eastern Mediterranean basin as well as the involvement of major global energy companies mark an important turning point. In Israel, the exploration and production of natural gas reservoirs off Israel's coast, in the past decade, affected significantly its electricity production and overall energy mix. This has also turned Israel into an energy exporter.

Importantly, these developments opened the door for growing synergies between Israel, Cyprus, Greece, Italy, Egypt and other countries in the region. The countries are also working together to establish alternative energy supply routes from the eastern Mediterranean to Europe. In this context, the East Med Gas Forum (EMGF), with its headquarters in Cairo, is an important venue for the regional dialogue on energy - both on ministers and senior level as well as on the professional level.

Furthermore, in 2022 a trilateral memorandum of understanding was signed between Israel, Egypt and the European Union. An important focus of the MOU is to work together towards the stable delivery of natural gas. Other crucial points of focus for future collaboration are the expansion of green energy supply, renewable and low carbon hydrogen, decarbonization and environmental protection.

Israel attaches great importance to the development of further synergies, including through close cooperation with companies from the United States, Asia and Europe. Israel is looking forward to further engage with other international energy companies to expand exploration and production activities. It is also an important pillar of relations with neighboring countries

A good example of the positive potential for the Eastern Mediterranean, can be seen in the Israel – Cyprus - Greece trilateral partnership. Solidified in recent years, this trilateral serves as a solid pillar for cooperation, based on shared values, common interests and strong bonds of friendship. Importantly,

this partnership has also opened the door to closer ties between decision makers as well as professional and civil society.

In the energy field, Israel, Cyprus and Greece have joined hands to explore several strategic projects. The three countries signed in 2020 the EASTMED pipeline agreement. In the following year, a trilateral Memorandum of understanding was signed to develop the Great Sea Interconnector (formerly named the Euro-Asia interconnector) - a cable connecting the electrical grids of Israel, Cyprus and Greece with Europe. Further senior level discussions and professional consultations are taking place these very days, between energy ministries and electrical authorities, to examine the technical and financial aspects of the interconnector. Similar projects are already being explored also with other countries in the region.

Looking from a wider viewpoint, there is a vital need for countries in the Middle East and the Mediterranean basin to work together. In addition to growing energy needs there are also clear needs for significant additional water resources. Both on Energy and Water, neighboring countries in our region can complement each other, making the overall result greater than the one achieved by each country individually. The already existing cooperation on natural gas and electricity interconnectivity can serve as a platform to further accelerate common infrastructure projects also in other related fields.

Energy transition - reducing emissions and renewable energy

Meeting the challenge of climate change, which greatly affects our region, is a top priority. There is wide scope for cross border cooperation and for coordination of efforts of Eastern Mediterranean and Middle East countries in this regard. Leading researchers and scientists are already working together. There are also initial regional initiatives on climate and environment protection, for example the Cyprus initiative for coordinating Climate Change Actions in the Eastern Mediterranean and Middle East. Israel strongly supports these initiatives.

At the same time, in view of its commitment to the Paris Agreement and to meeting the goals of reducing greenhouse gas emissions, as well as to ensure energy security, Israel is working to diversify its energy mix – in particular through the development of renewable energy. According to the decisions of the Israeli government, the goal of electricity production from renewable energy is set at 30 percent in 2030. In 2023, about 11.5 percent of electricity production was from renewable energy.

As large parts of Israel enjoy long hours of sunshine, the main emphasis regarding renewable energy in Israel is on solar energy. Photovoltaic installations supply over 90 percent of all renewable energy in Israel today.

The rest, in smaller percentage, is divided into thermo-solar facilities, wind energy, biogas and hydro-power.

In the current phase, the Israeli authorities responsible for energy production are working to meet the intermediate goal of 20 percent of electricity from renewable energy in 2025. Concrete steps have been taken to achieve this. In 2023, the Electricity Authority adopted a decision that would allow an additional 2,500 MW of renewable energy to be connected to the electricity grid in Israel. In operational terms the decision will make it possible to connect to the national grid a large number of energy facilities located mainly in the periphery of the country and to increase the proportion of electricity from renewable sources in the market.

The Ministry of Energy and the Electricity Authority of Israel are also working to promote the strategic plan to develop the electricity transmission network. Approximately 17 billion New Israel Shekel have been allocated, until 2030, in order to allow the continued connection of renewable energy facilities to the grid. Another decision that was recently adopted is to extend the construction period for renewable energy production facilities, so that the construction period will be determined according to the complexity of the network works that the electric company is required to perform. This extension will allow more connections to the low voltage grid.

In the field of tariff regulation, the Israeli Electricity Authority extended the validity of the tariff regulation and updated the low-voltage production and storage tariffs, so that the establishment of solar production facilities and low-voltage storage facilities will be further encouraged.

In addition, decisions were made to increase competition and open the supply segment. Until now, only consumers in Israel with a smart meter can join the competition in the supply segment and switch to a private electricity supplier. The Electricity Authority published, for a public hearing, proposed amendments to the standards that will also allow consumers without a smart meter to join the competition in the supply segment, regardless of the installation of a smart meter.

In recent years technological systems for solar energy and energy storage have developed and the steps and benefits described will provide necessary incentives for the production of renewable energy. This constitutes a strong basis for further expansion of green and in particular solar energy production in the energy mix of Israel.

Further cooperation on clean energy R&D between Israel, its neighbors and international partners

Israel is further pursuing the advanced research on green energy. More than a hundred pilot projects are being promoted in agricultural plots in the Agro-voltaic field. There is also an expansion of solar projects in water reservoirs. In addition, hundreds of companies in Israel develop advanced technological capabilities in the fields of energy storage, green hydrogen, smart power grid management, energy efficiency, energy security and more. There are R&D relationships and projects in cooperation with companies around the world, among others in the USA, Europe, Asian countries and Africa.

In 2023, Israel published its hydrogen strategy. Hydrogen will be used as the fuel of the future mainly in the field of heavy industries, heavy transportation and electricity production. Hydrogen also allows the storage of renewable energy. With over 20 startups and scale up companies working on Hydrogen, the Israeli tech ecosystem is playing an increasing important role in this field. The hydrogen strategy together with the development of technologies to produce, use and store hydrogen will allow Israel to develop the field in line with leading countries in the world.

The collaboration between Israel and its regional neighbors - such as Egypt, Jordan, Morocco, the United Arab Emirates, Bahrain and others – can maximize the potential to develop joint projects for clean energy. The transition to renewable energy together with regional energy and electricity connectivity are particularly critical to dealing with climate challenges. American and European support for these joint regional energy projects is significant. This has an economic importance as well as a tangible contribution to regional stability.

Looking forward, there are enormous challenges facing the region. First and foremost, developing Security solutions, ensuring stability and economic prosperity as well as taking action to combat climate change and its impacts. Growing cooperation in the Eastern Mediterranean on energy, decarbonization and environmental protection is a key towards meeting these challenges as well as to develop new opportunities for the future.

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<https://innovationisrael.org.il/en>

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Ambassador Shmuel (Sammy) Revel was appointed as Special Envoy for Energy at the Ministry of Foreign Affairs of the State of Israel. From 2017 until 2021, he was the Israeli Ambassador to the Republic of Cyprus. After joining the Ministry of Foreign Affairs in 1987, Sammy Revel served from 1990 to 1993 as Second Secretary of the Embassy of Israel in Manila, Philippines. From 1993 to 1996, he served as First Secretary in the Headquarters of the Ministry of Foreign Affairs in Jerusalem, as a member of a team in the Office of the Director General that advanced Regional Economic Cooperation in the Middle East. In 1996, Revel became the first Head of Mission of the Trade Representation Office of Israel in Doha, Qatar, where he served until 1999. He received the Foreign Ministry's Director General's Award of Excellence for establishing the Mission. In 2009 he published the book "Israel at the Forefront of the Persian Gulf – The Story of an Israeli Mission in Qatar" (in Hebrew). Since 1999, Sammy Revel has been focusing on Israeli – European Affairs. From 1999 to 2002 he served as Deputy Chief of Mission of Israel to the European Union and NATO in Brussels. Between 2002 and 2005 he was the Director of Economic Division 3 in the MFA Israel.

From 2005 to 2008 Sammy Revel was Director of the Department responsible for EU Affairs and NATO in the MFA. Between 2008 and 2012 he served as Deputy Chief of Mission (Minister Plenipotentiary) of the Embassy of Israel in Paris. From 2014 Revel served as Head of the Bureau of the European Division in the Israeli Ministry of Foreign Affairs. Sammy Revel published in 2015 a novel entitled "Dreaming beyond the Wall" (Hebrew), with a storyline unfolding on the backdrop of the development of the Israeli-European relations, since the fall of the Berlin Wall and until recent years. Ambassador Revel holds a B.A. in Computer Science and Mathematics and an M.A. in Philosophy, History and Sociology of Science from the Hebrew University, Jerusalem.

ALBANIA AND REGIONAL ENERGY SECURITY OF SUPPLY

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Introduction

There is war in Europe. It's been 70 years since there has been one. It is not a geopolitical disruption. It has upended decades of work, rules, and thought on energy and economic security. In the words of Mario Draghi, the former PM and Head of ECB “Europe cannot be competitive if **we pay three times more for electricity than in the United States** and five to six times more for natural gas than in other areas of the world.” He even threw salt on the wound, “The three pillars the EU has relied on — energy from Russia, exports from China and the U.S. defense apparatus — are no longer as solid as before, and on the green and digital transitions alone the EU would have to spend €500 billion a year.” Unfortunately, he fails to point out and it must be stated clearly that the only way forward to return to stability can be achieved by having 1) revert to having cheaper energy 2) build an army and 3) obtain non-Chinese exports/imports.

Energy is one of the main economic inputs. It affects competitiveness of an economy and subsequently the ability of the economy to build an army and compete against non-EU economies, non-friendly economies, more specifically China if we follow the advice of Draghi. Unfortunately, Draghi fails to take the leap and continues to list climate change as an issue that needs to be dealt with now rather than the EU losing competitiveness and Ukraine losing the war. Can the EU get cheap electricity/energy by continuing to fight “climate change” while there is a war in Europe? Can it produce cheap and good quality food if farmers are faced with punitive emissions targets?

Germany has rightly been blamed for being exposed to Russia for over 60% of its natural gas supplies yet we fail to acknowledge that for solar, wind and batteries the exposure to China is over 95%. Is the EU about to make the same mistake by exposing itself by over 90% to China for renewable energy raw materials? In fact, for some of the materials used in batteries the domination of China is close to 100%. Africa is the other place to look for such materials, yet Wagner has recently paid a visit to several countries in that continent.

Albania sources almost all its electricity from renewable sources. In fact, it can double its installed capacity of electricity generation from hydro only.

When adding solar and wind, that capacity could probably triple and could be able to do so by respecting sustainable uses of land and water. While there are limited studies on pumped storage a rough estimate would put the potential installed capacity at quadruple the current one. At such a level Albania alone could provide clean renewable electricity to Macedonia and Kosovo. Yet national energy strategies are developed mostly locally with little regional coordination. The Energy Strategy of Albania goes only as far as coupling with the market of Kosovo.

Under the current geopolitical and economic situation in the world, a more regional approach should be taken to ensure energy security of supply and most importantly cheap energy for all of Europe so that it can initially help Ukraine win the war and then go back to its renewable energy targets. The countries of Southeastern Europe (SEE) are contracting parties to the Energy Community Treaty; hence they will be treated in this energy security of supply analysis as if they were EU members.

The Renewable Energy movement in the EU and Russia

The EU started setting RES targets as early as 2001 with Directive (2001/77/EC). It must have caused concern in Russia as Europe is the most important and its wealthiest customer. Russia counted at least on the special partnership it had with Germany, an industrial powerhouse for Europe. Their cooperation had withstood even the tensions of the Cold War. At the same time, Russia must have felt comfortable thinking the EU would continue to exploit its natural gas supplies as a cheap and reliable source of energy. It is at around the same time as Directive (2001/77/EC) that discussions started about the Nord Stream Pipeline. Opposition mounted to Nord Stream as Eastern EU and non-EU countries sensed that it would affect their energy security and diminish their geopolitical leverage with Russia on top of lost gas transit revenue.

Nord Stream 1 was completed in 2011 despite opposition as those in favor argued that it provided increased security of supply since it did not pass politically unstable non-EU members such as Ukraine. The period from 2001 to 2011 saw an increase in energy prices as well, despite falling after the crisis of 2008.

As Nord Stream 1 “settled” and became part of the energy structure of Europe, Russia saw the opportunity to solidify (in its view) its position in the European market by starting discussions about Nord Stream 2. Hence, they did start in 2015. The arguments were the same as for Nord Stream 1. Russia presented these pipelines as offering energy security through diversification of supply routes away from politically unstable countries. There was one major difference though in conditions. These discussions started after the

annexation of Crimea in 2014 despite international agreements confirming and protecting the territorial integrity of Ukraine.

Protests of Eastern EU members were strengthened by those of the United States. They argued that economic and energy exposure to Russia now came with much more increased risks, security of supply, geopolitical and economical. The annexation of Crimea was the first such occurrence in 70 years. Such an event had not even occurred during the Cold War. Russia having secured business continuity in natural gas could now initiate full scale attack on Ukraine as its contractual obligations, gas exports and cash flow would not be hampered. Russia attacked Ukraine in Feb. 24 2022, 5 months after the completion of Nord Stream 2. 20 days earlier Russia signed “Joint Statement on Further Deepening Comprehensive Strategic Partnership of Coordination for a New Era Between the People’s Republic of China and the Russian Federation. The cooperation of Russia with China especially on energy benefits both as Russia will continue to sell its natural resources and prevent an economic recession which in turn would cause the prices of raw materials to collapse. In exchange, China remains supposedly neutral to the conflict in Ukraine, the Middle east and elsewhere.

Eastern EU members were proved right. While it is easy today to present this timeline of events leading to the attack of Russia on Ukraine, the EU must not make the mistake of reading the clear strategic decisions that Russia has made. In the words of Draghi, energy from Russia is no longer a pillar on which the EU economy can stand on. While substantial imports of Russian gas and oil continue to make their way into the EU, the President of Russia, Putin has on several occasions stressed that the future of economic development is Asia. Those with deep knowledge of how the Chinese Communist Party thinks attest that non-democracies have the luxury of engaging in long-term agreements as compared to the short-term ones in democracies. Those words have been matched by actions to sustain the drive to keep fossil fuel prices high. As prices started stabilizing and even falling by the end of 2023 and in 2024 the Middle East crisis started. While there are no indications of Russian involvement it is necessary to reference the coincidence.

Europe is thus presented with an existential problem. Its economy can no longer rest its economic foundations on Russian energy. Most importantly, even before the war in Ukraine, energy in Europe was and is far more expensive than in the USA and other areas of the world.

How will Europe then remain competitive? Energy is a major economic input and production factor along with land, labor, capital, entrepreneurship, and technology. Without delving into major analysis, we can roughly agree that land in the EU is limited and already exploited to its potential. The

population is decreasing. Capital has already been deployed to prop up the economy after the Covid-19 pandemic. Entrepreneurship has not made any significant additions to the economy when compared to the Artificial Intelligence developments in the US or the way China and other large Asian economies leverage their large markets and populations. Technology and industrial prowess remain major competitive advantages for the EU, however technology and industry require ever increasing amounts of energy. CHEAP energy.

Where will Europe get cheap energy while it must maintain a competitive economy and finance the war effort and the economy of Ukraine as it fights Russia?

That is the question nobody wants to answer. Enrico Letta was charged by the EU Commission to draft a report on the competitiveness of the Union. “Cheap energy” is not mentioned in the report. However, he does provide a few statements which point in the right direction such as

- “the lack of integration in the financial, energy, and electronic communications sectors is a primary reason for Europe’s declining competitiveness.”

- “Leveraging the full benefits of the Single Market in the energy sector requires in the coming years a further leap in interconnectivity and a massive investment in Europe’s infrastructure networks, from upgrading the electricity transport and distribution grids to building a backbone hydrogen infrastructure.”

However, some of the statements are contradictory, on the one hand Letta insists that the EU should “direct all energy towards the financial support of the transition, channeling all necessary public and private resources towards this goal” and then stating that military “must be addressed in a comprehensive dimension and must influence energy policies as well as financial policies.”

As reported in Politico, there is little money available to achieve the aims of the energy transition. The Letta report seems to accept that there is little money to be spent on so many priorities and proposes the employment of Public Private Partnerships as a solution to the problem despite the doubts remaining as to why private money is not financing transition projects if they are profitable. This might come as a surprise to many since renewables are often portrayed as becoming cheaper and cheaper. However, clearly the free market, abundant with funds and capital, is not yet convinced. The painful shock of the energy crises should convince the EU that climate and energy policies must bear in mind industrial, social, and employment policies. If not, the rise of authoritarianism in Europe will continue to increase.

To cap it up, Letta calls climate and energy policy “areas demanding innovation and disruptive technologies”. In fact, we argue that considering the current geopolitical situation and the Russia-Ukraine war the needs of the EU are the opposite as exemplified by predictable security of supply in energy projects that draw private investment.

For the moment the EU continues to believe that renewable energy plans and the huge amounts of funds needed to fund it must not be touched. We argue this is not sustainable be it economically be it geopolitically. Ref.

While Germany was rightfully scorned for being exposed to Russia for 60% of its natural gas needs, the world is dependent on China for around 95% of the raw materials needed for the renewable energy industry ranging from those needed for solar panels, wind turbines and batteries. Ref Most importantly, few of these materials can be recycled. Hence, the same arguments that were made against exposure to Russia for fossil fuels can be made about exposure to China for renewable energy raw materials. Unfortunately, the EU is far from obtaining cheap energy compared to major economic competitors rather it is in dire need to ensure Energy Security of Supply.

Under the energy security of supply model, we present below, besides the other factors, one way to obtain cheap energy is to achieve over-capacity. Over-capacity is as well pushed by the need to have dependable, dispatchable back up when the wind does not blow “as usual”. As all other input factors in the world are limited, it might very well be that energy intensity will have to make up for shortages elsewhere. In fact, as the EU pushes for technology and innovation, one factor that is currently prevented further development of Artificial Intelligence is lack of energy. Most importantly the highest cost of electricity is not to have any at all. During the energy crises in Albania back in 2004, a lot of families and especially businesses would own small diesel generators. At a conversion efficiency of 30% most people probably were paying three time more than for any other source. Some would not make use of electricity at all. When electricity arrived, the grid could not cope as all would turn on every possible appliance which in turn cause transformers and the grid to overheat and burn, further increasing unit cost.

What is Energy Security of Supply to the EU? Towards creating a model

Surprisingly, the definition of Energy Security of Supply is vague. Numerical targets and deadlines for Energy Security of Supply are almost nonexistent in EU regulations and directives as compared to the ones about Renewable Energy.

By comparison, the NCEP of Albania, a country negotiating to accede to the EU but already a contracting party of the Energy Community, includes detailed numerical targets and deadlines even for the amount of water to be heated by solar panels. For the record, “Albania solar thermal share in water heating must increase by 12%-age points until 2030 and by 20%-age points by 2050!”

As per EU regulations and directives, Energy Security of Supply is ensured by the following components:

- Diversification of energy sources and routes
- Enhanced infrastructure
- Emergency preparedness and response
- Information sharing and transparency.
- Market liberalization and competition.

In all of these areas, the EU does not set numerical, tangible and specific targets as it does for Renewable Energy. For example, it does not state that no EU country should be exposed to one importer for over 80% of imports in one energy source, let’s say natural gas. In order to achieve diversification of energy sources should not eliminate any single source, rather make use of as many as possible.

Or under enhanced infrastructure, it does not set numerical targets and deadlines for the import capacity of a member country. Again, for the sake of giving an example, every EU member should have at least an electricity import capacity at 30% of consumption. Under emergency preparedness and response, it does not for example maintain 2 FSRUs that can be deployed within 30 days anywhere in the EU to help with a crisis or emergency.

Measures on market liberalization and competition are somewhat more detailed, yet the electricity market design has lately come under pressure as to being obsolete and the process of updating it is bureaucratic and time-consuming. Strangely enough, some generally accepted rules of thumb on energy security of supply have not made it into the energy security of supply directives and regulations concerned. We list them as follows:

- Limit exposure to a single source of energy to less than 30-40% of energy consumption.
- Reserve margin, which means generating capacity at 20% higher than peak demand.

- Reserves of physical energy, for example 90 days of oil consumption reserves.
- Mandate Interconnection capacity at 15% of peak demand.

Possible ways out of the current situation

The current geopolitical and economic situation around the world is unprecedented. Many are saying we are in a pre-war WW3 period and that things will never be the same again. As the timeline of current events have been presented earlier, which in a nutshell stems from the frustration and failure of democracy to take hold in Russia we will now consider certain scenarios that could potentially take the world out of the current situation. As Mario Draghi says, “radical change is needed”. Some of the possible solutions below are indeed radical.

Send the world economy into a recession

For the easy part, let’s resort to history. The last time when something similar happened was during the oil crises of 1973, 1979 and the stagflation decade that lasted well into the ‘80s. The “solution” back then came at a huge cost. Interest rates were raised so high that they stopped inflation and sent the world into a recession. The recession sent oil and energy prices down to the point that USSR could no longer finance the war in Afghanistan and retreat.

That option does not seem plausible during the next 12 months because this is an election year and because a potential re-election of Trump would be as unpredictable as the first. Despite the various waves of sanctions, the IMF says the Russian economy will grow more than that of other major economies. This goes a long way to prove the point we made earlier that the current war in Ukraine and the crises in the Middle East benefits oil producing countries. China is experiencing lower growth, price decreases because of lower demand and over capacity and especially because of problems with the overheated construction industry. The latest seems to be a problem in most countries as the housing market cools from the tremendous highs caused by near zero interest rates that were lowered to fight the pandemic and by the increased demand for housing from people terrified of being quarantined inside small apartments. By comparison, growth in Germany was negative in 2023 and expected to rise to only 0.2% in 2024.

Different from what we saw during the crises of the ‘70s and ‘80s we don’t see any push towards deregulation, even less so in fossil fuel production with few exceptions (such as in the UK). Deregulation helped alleviate the situation in that period with regards to the supply side. Deregulation is much

needed with regards to renewables as well. To the contrary, we see most G7 countries still betting on heavily on renewables as a source of cheap energy which as explained earlier will be more expensive than fossils at least for the duration of the war in Ukraine. In an absurd twist to events, most western democracies continue to import Russian gas and oil the latest now travels all the way to India and then to western markets. While this option seems terrible it would be less terrible than WW3 by a tremendous margin.

Follow Churchill's playbook.

Appeasement will not work. It will only create conditions for a much larger conflict later. Non-democracies will always be enemies. Win the war against Putin. During the Cold War, Western Europe was not capable of winning a conventional war against the USSR and only the Nuclear Deterrent and the MAD policy ensured peace. As the USSR dissolved and NATO members increased on the back of the earlier is it true that the conventional power balance rests with NATO and Russia wields the Nuclear Deterrent and MAD? However, this is an analysis beyond the scope of this paper, yet it should receive more attention as many openly discuss the possibility of WW3.

Return to state monopolies.

The rise of authoritarian political tendencies in Europe is coupled by a rise in preference for a return to state monopolies in the energy sector. People especially in Eastern Europe long for a stable and predictable environment in which they can influence the price of energy at the ballot box as compared to a myriad of free market institutions that should regulate, balance, and ideally protect a rather strategic sector. Monopolies have long been accused of inefficiently investing too much in capacity and the grid, yet these two pillars are more than ever important in the current geopolitical and economic situation. The myriad of legislations, procedures, and bureaucracy needed to be followed in democracies often bewilders the older generations. A move toward simplification of regulations and swifter treatment of documents by leveraging technologies is mentioned in Letta's report. Yet there are 0 occurrences of the word deregulation, 124 mentions of "regulation" and 1/146 pages on simplifying regulation.

In conclusion, considering the current geopolitical and economic situation which will remain similar for the next 12 months and uncertainties increasing further beyond that period it is important to stress that security of energy supplies and availability of cheap energy take precedence over the myriad of renewable energy directives and regulations in place. Until the war in Ukraine is over, we argue that such RES efforts be paused or otherwise the cost to industry, employment, and competitiveness in Europe will fall and will put Europe physically at risk. While this may sound radical, the signs of

stress in the fabric of democracies around Europe are ever more visible and will very soon require radical measures. While we hope we are wrong in our predictions for the near future, some of the recommendations listed below are not extremely difficult to implement.

Recommendations:

The EU should make energy security of supply the top priority under the current situation of the 1st war in Europe in 70 years and several PMs of the EU openly discussing about WW3.

The 2nd top priority should be the aim to have the lowest possible cost of energy and suspend expensive (Renewable) Energy projects until the war is over. The merit order should follow the LCOE metric.

Couple/pool EU and Contracting Parties energy markets so that they include as many energy sources and technologies as possible. The effort should move from coupling to a regional approach, for example, Bulgaria, Albania, Kosovo, N. Macedonia, and Greece could form a group that would include from Nuclear, to Coal, to Hydro, nat. Gas, Solar, Biomass, and Wind. Another such group further north would include Slovenia, Serbia, Hungary (already operating in the same exchange) and Bosnia. Pooling would lower costs as well through economies of scale. For example, deploying BESS for all the countries in the pool. As Letta writes in the report “when the Single Market was established energy was excluded from its scope, deemed to be too strategic to be integrated beyond national level”. The regional approach, different from the current regional EU division into (NSCOGI, BEMIP, CESEC, and MEDREG) follows the model presented earlier which is based on pooling diverse sources of energy first and then proximity when distributing countries to each region.

Deploy all possible distributed energy/electricity systems as the highest level of personal and independent energy security of supply such as off/on-grid solar photo-voltaic and small-scale wind. These two remain heavily regulated, especially for communal buildings. Distributed electricity networks are gaining a lot of attention lately. Ukrainian officials as well requested distributed wind turbines since it would be a lot more difficult for Russia to target them compared to concentrated large plants. Large plants and interconnectors are easy to attack.

Allow and push for industries in Europe to work during weekends to make use of cheaper energy prices. In countries with strict national/religious based law employ immigrant of different religion. For example, large Muslim minorities in Germany would appreciate working on Saturday and Sunday and take Friday off. Even robots are not “allowed to work” on Sundays in Germany!

Differentiate coal grades. If RED stipulations cannot be paused, then start with phasing out the most polluting grades of coal such as lignite rather than all of coal grades. Differentiate these lignite plants by efficiency as well.

Enact country wide energy efficiency measures, for example, set clear targets and deadlines for no EU country to have no building with energy efficiency under D and then move up the ladder.

Maintain and operate 2 FSRUs that can be deployed within a month at any location in the EU to deal with emergencies, bottlenecks, and similar disruptions of supply.

Mandate co-investments in energy production so that Member States build trust with one another. For example, build new NPPs in Bulgaria co-owned by other countries in the region and build new HPPs in Albania co-owned by other countries in the region. Such a mechanism would exploit operation know-how that is not available vice versa.

Last and most importantly, deregulate energy production, grid construction and remove subsidies for renewables.

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THE ROLE OF ANCILLIARY SERVICES FOR THE TRANSMISSION NETWORK IN SOUTHEAST EUROPE

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Abstract

The transmission network in Southeast Europe faces unique challenges and opportunities due to the region's diverse energy mix, varying degrees of market liberalization, and integration with the broader European energy markets. The ancillary services in this context play a crucial role in maintaining the security and reliability of the electricity supply. In particular these services refer to the functions that help support the transmission of electricity from producers to consumers, ensuring stability and efficiency of the power grid and play a significant role with regard to voltage harmonic mitigation, the primary frequency response, ramp-rate limitation, reactive power regulation and many more. Therefore when it comes to the green transition process, in reality the energy transmission systems in Southeast Europe turn to be the key for the dynamic integration process of renewable energy power generators in the context of the common decarbonization policy. Thus, these activities will have a significant economic impact.

Introduction

Diving deeper into the technical and economic aspects of ancillary services in the transmission network of Southeast Europe requires a nuanced understanding of the operational dynamics of power systems, the existing energy infrastructure, and the regional market conditions. Traditional power systems, dominated by synchronous generators (like coal, gas, and hydroelectric plants), inherently provide system inertia which helps to maintain system frequency. With the transition to lighter, renewable energy sources, system inertia decreases, challenging frequency stability. Ancillary services must compensate for reduced inertia, deploying fast-response resources (like batteries and demand response mechanisms) to manage frequency deviations more dynamically.

The Southeast Europe Region challenges

The balancing services are necessary to manage real-time discrepancies between electricity supply and demand. Southeast Europe's transmission system operators must constantly balance the system by adjusting the output of generators or adjusting consumption. Given the increasing penetration of intermittent renewable energy sources like wind and photovoltaic power, the importance of effective balancing services is heightened to manage

the variability and uncertainty of power generation. Voltage and frequency control are vital to ensure that the electrical system operates within safe and efficient parameters. In Southeast Europe, the integration of diverse generation sources, including significant contributions from renewable energies, necessitates sophisticated voltage and frequency regulation mechanisms. These services maintain the stability of the power system, preventing damage to infrastructure and ensuring the continuous provision of electricity.

Given the geopolitical and infrastructural particularities of Southeast Europe, ensuring robust black start capabilities is essential for enhancing the resilience of the power system against natural and man-made disruptions. The regional susceptibility to various disruptions underscores the vital role of black start strategies. The main task in this aspect is to explore the technical aspects, evaluate present systems, and propose technical enhancements to ensure resilience against both natural and man-made grid disruptions. Southeast Europe's power system endures unique challenges arising from geographical diversity, geopolitical complexity, and an evolving infrastructure landscape. These factors could generate substantial risks of grid instabilities and failures. Analysing and addressing these risks, robust black start capabilities, which enable power systems to be restored independently after a complete shutdown, are of significant importance. The black start includes a complex of activities to recover from a total or partial shutdown of the electricity transmission grid. The service is critical for restoring power in the event that there is no remaining electrical power within the grid.

This region includes a spectrum of EU members and non-EU countries with different stage of infrastructure status and reliability. Political instability, economic constraints, and dependency on legacy energy assets complicate the energy landscape. The interconnectivity with the broader European grid amplifies these challenges, as disturbances can easily arise across national boundaries.

The evaluation of the black start procedures involve multiple stages:

- **Initial start-up generation:** Utilizing black start generators to provide power for essential services within the plant;
- **Energizing the key transmission lines:** Gradually restoring power to critical infrastructure and transmission lines;
- **Synchronization and restoration:** Synchronizing restored plants with the grid and incrementally adding loads to stabilize the system.

The effectiveness of these steps varies across the different countries

due to disparities in technology adoption and infrastructure capabilities. The technical challenges in enhancement of black start capabilities can be structured in the following way:

- **Aging Infrastructure:** Many Southeast European grids incorporate outdated technologies that are less efficient and more susceptible to failure;
- **Resource Allocation:** Limited financial resources and technical expertise can delay the adoption of advanced black start technologies;
- **System Complexity:** The interdependence within the power grid and its critical infrastructure makes coordinated restoration challenging.

On this ground and while looking for a long-term approach the following recommendations for technical solutions could be considered:

- **Upgrading black start units:** Substitution of aged black start resources with more reliable modern units, such as advanced gas turbines and battery storage systems, to reduce start-up times and improve reliability;
- **Investing in Smart Grid Technologies:** Implementing smart grid technologies can facilitate better management of grid dynamics during black start conditions through automated control systems and real-time data analytics;
- **Enhancing Cross-Border Cooperation and Planning:** Developing standardized protocols and cooperative frameworks for cross-border support in black start operations to address interdependencies and optimize resource utilization. The key organizations involved in these processes typically work together while addressing both technical and regulatory aspects.- these include **National Energy Regulatory Authorities, Regional Transmission Organizations (RTOs) or Independent System Operators (ISOs), European Network of Transmission System Operators for Electricity (ENTSO-E), Energy Ministries and Departments.**

The transmission network in Southeast Europe is increasingly integrated with neighboring regions, facilitating cross-border electricity trade. This integration requires inter alia harmonization of ancillary services and coordination among TSOs to ensure their seamless provision across borders. Effective steps in this relation guarantee enhanced efficiency and reliability but also pose significant technical and regulatory challenges.

In this context, however, it should be clearly stated that the implementing of effective ancillary services in Southeast Europe faces several problems, including the need for significant investment in grid modernization, the harmonization of regulatory frameworks, and the development of efficient

electricity markets. Nevertheless, these challenges also present opportunities for innovation, such as the adoption of advanced energy storage solutions, demand response programs, and digitalization of the electricity grid to enhance the provision of ancillary services.

The economic background

The costs associated with providing ancillary services can vary widely, influenced by the market structure, the available technologies, and the demand for these services. Investing in flexible technologies and infrastructure (like energy storage and smart grids) necessitates upfront capital but can reduce operational costs over time by increasing system efficiency and reducing the need for traditional peaking power plants. The economic landscape of ancillary services is heavily influenced by regulatory policies and market design. In Southeast Europe, evolving EU regulations and the drive towards energy market integration necessitate reforms in market structures to efficiently price and procure ancillary services. In addition to a harmonized approach concerning policy and regulatory framework, the successful deployment of ancillary services technologies requires significant investment. Such investments can be stimulated by clear policy signals, financial incentives, and regulatory decisions, supportive of innovation and investment in clean energy technologies. Economically, cross-border trading allows for more efficient use of resources across the region, reducing overall costs. This, however, requires compatible market platforms and regulatory frameworks across countries to facilitate seamless transactions. The countries in Southeast Europe already demonstrate commitment to this process implementing coordinated market approach between the EU-member and -nonmember states in order to achieve a common grid sustainability and reduced cost of the services.

With the transformative changes in power systems due to renewable energy integration, electric vehicles, and energy storage, new categories of ancillary services are emerging. These include services for:

- Enhanced grid flexibility;
- Faster and more dynamic frequency response;
- Advanced congestion management utilizing distributed energy resources;
- Integration of storage systems for both energy shifting and fast system support.

Theoretical Scenario

In order to achieve a full regional market transparency it is important to assess the additional annual costs for ancillary services required to support a 20% increase in wind and solar power capacity in Southeast Europe over the next five years. In practical terms this refers to the following:

- **Change of the Current Renewable Capacity** (Wind + Solar): 20 GW; the proposed Increase is at the level of 20% of existing capacity i.e. 4 GW additional capacity;
- **Cost of Enhancing Ancillary Services** (to accommodate new renewable capacity): \$10 million/GW per year (This figure can encompass investments in technology, operational changes, and the maintenance of additional reserves for frequency and voltage control, among others.);
- **Energy Mix Impact:** The increase in renewable capacity displaces an equivalent capacity of baseline coal generation, with implications for system flexibility and reliability;
- **Electricity from Renewables:** Assumed to displace more expensive and less environmentally friendly generation sources, thus reducing overall system costs and emissions but requiring more sophisticated and costly ancillary services to maintain grid stability.

The presented calculations give a general overview of the process in the context of re-power:

1. Additional Ancillary Services Cost: Given the cost of enhancing ancillary services is \$10 million per GW per year for the new renewable capacity:

$$4 \text{ GW} \times \$10 \text{ million/GW/year} = \$40 \text{ million/year}$$

2. Displacement Savings: hypothesize that displacing traditional coal generation with renewables saves \$60 per MWh due to reduced fuel and carbon costs. Assuming each GW of renewable capacity generates 2,200 GWh/year:

Based on this calculation the savings from displacing more expensive generation are significantly higher than the costs of enhancing ancillary services, suggesting that the transition to more renewables, even with the added costs for ancillary services, is economically beneficial before considering other factors like societal and environmental benefits.

3. Net Economic Impact (First-Year Perspective): If one subtracts the

additional costs for ancillary services from the savings due to generation displacement:

$$\$528 \text{ million/year} - \$40 \text{ million/year} = \$488 \text{ million/year}$$

This rough calculation suggests that, in a hypothetical scenario for the region, the addition of 4 GW of renewable capacity would provide a positive net economic impact, thanks to substantial savings from displacing coal generation, even after accounting for the increased ancillary service costs.

The following considerations arise after the presented regional driving trends evaluation.

- **Capital Costs:** This example does not take into account the capital costs of adding new renewable capacity.
- **Operational and System Benefits:** Savings from operational costs, increases in system efficiency, and environmental benefits are also not included.
- **Market and Regulatory Impact:** Changes in electricity prices due to increased renewable penetration and the potential need for market and regulatory adjustments are beyond this calculation's scope.

This simplified analysis illustrates the potential economic benefits of integrating additional renewable energy sources into Southeast Europe's grid, acknowledging the increased costs for ancillary services. For a more thorough and accurate assessment, detailed modeling that includes dynamic system responses, market impacts, regulatory changes, and long-term environmental benefits would be necessary.

In conclusion

The technical innovations and economic mechanisms must be integrated to enhance the provision of ancillary services in Southeast Europe's transmission network. Some of the possibilities in this direction could be:

- Strengthening an **enhanced communication infrastructure** - data exchange infrastructure that allows a better coordination and real-time decision-making across different transmission system operators (TSOs);
- **Interconnection Upgrades** - increase cross-border interconnection capacities to allow for easier sharing of ancillary services like reserve power and black start capabilities between countries;
- **Ancillary Services Market** - develop a substantial regional market

for ancillary services that allows multiple parties (including countries outside the EU) to bid for providing these services, fostering competition and reducing costs;

- **Incentive Programs for Grid Enhancements – structuring a vehicle** for utilities and private companies to invest in technologies that improve the grid’s flexibility and resilience, such as advanced metering infrastructure and grid-scale storage.

Achieving this balance requires not only substantial technical and infrastructural developments but also favorable economic base fostered by supportive regulatory policies and market frameworks. As the region moves towards a more sustainable energy future, the evolution of ancillary services will play a critical role in ensuring the reliability, efficiency, and resilience of the power system.

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MORE ABOUT THE BULGARIAN DIPLOMATIC INSTITUTE

The Bulgarian Diplomatic Institute (BDI) was created on 23 September, 2003, pursuant to a Decree of the Council of Ministers. Its status and functions were regulated by the Diplomatic Service Act adopted by the National Assembly on 13 September, 2007. Its work meets the high demands and professional expectations pursuant to Bulgaria's membership in EU and NATO, and displays continuity that allows the Bulgarian diplomatic profession to have the place it deserves in the large Euro-Atlantic family.

Our mission is to:

- Guarantee the high-level expertise and skills of the diplomatic staff and the public administration by applying up-to-date professional standards of training;
- Enhance continuity in the Bulgarian Foreign Service by promoting exchange of experience and good practices among generations of diplomats;
- Promote the diplomatic profession and Bulgaria's foreign policy by reaching out to the general public;
- Provoke exchange of expertise on foreign policy issues by providing a platform for debate among government and non-government actors;
- Support the diplomatic profession and the foreign policy debate by research and publications;
- Develop national and international cooperation by implementing joint projects.

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Among our major training programmes are the courses for the MFA trainee attaches and consular staff, foreign language training, courses for diplomats, representatives of the public administration and of the NGO and private sector in the field of regional issues and security, energy diplomacy,

economic diplomacy, environment, public diplomacy, diplomatic protocol, as well as tailor-made trainings for foreign diplomats and our traditional Winter School of Diplomacy.

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To provoke public interest and debate on current foreign policy issues, we hold public lectures by prominent public figures, leading politicians and diplomats. We also organize conferences and round-table discussions with Bulgarian and foreign experts, to contribute to the exchange of expertise and to the foreign policy theory and practice. We interact actively with the young public by organizing essay competitions on foreign policy topics, visits of school and university students within our “Open Doors” programme, and by implementing a coherent internship programme. To enhance our public outreach, we aim at strong media and digital presence, and maintain our own radio broadcast, a webpage in Bulgarian, English and French, Facebook and Twitter account. The Institute’s national and international partnerships with government, research, NGO and academic institutions is visible in the implementation of joint projects and exchange in the field of training, research and public activities and EU policies.

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A strategic task of the BDI is to provide comprehensive analyses by internal and outside experts on international topics to meet the needs of the MFA and to enhance the expertise in foreign policy theory and practice. As of 2013 the Institute also holds national contests for applied research projects.

Among our publications, in Bulgarian and/or English, are the Foreign Policy Research Papers series, the Energy and Climate Diplomacy collection of journals, books and textbooks on EU matters, security and environment issues, diplomatic skills and practice, as well as the long-established Diplomacy Journal which has already grown into an online platform for foreign policy analysis and research. To assist its activities and programmes, the BDI manages a library of over 65 000 titles in over 20 languages, in the field of international relations, European Studies, security, international organizations, diplomacy, law, history, sociology, political sciences, economy, etc.

MORE ABOUT THE BULGARIAN DEVELOPMENT COOPERATION AND HUMANITARIAN AID

Development co-operation and humanitarian aid are an integral part of the foreign policy of Republic of Bulgaria and contribute to the achievement of its goals. Through development cooperation, Bulgaria contributes to a more balanced and equitable global development, taking its share of responsibility in the efforts to eradicate poverty and achieve sustainable development. As a responsible and active member of the international community, together with its partners it strives to protect human dignity and ensure a sustainable, just, inclusive, safe and prosperous future for all. The purpose of the humanitarian aid is to save lives, to protect human dignity during and as a result of crises, to help prevent such situations and to increase preparedness for them.

Bulgaria has been a development co-operation actor since joining the European Union in 2007. With its accession to the EU, it has made important commitments to participate in the Union's Common Foreign Policy, including development policy as its importance for the security is growing. Bulgarian development assistance and humanitarian aid successfully complements our participation in the EU's common external action instruments to assist neighbouring countries and regions, developing countries, and to provide humanitarian assistance.

Bulgaria, just as the rest of the new Member States which joined after 2002, is expected to strive to reach a target of 0.33% of gross national income for Official Development Assistance (ODA/GNI) within the time frame set by the 2030 Agenda for Sustainable Development for the achievement of the SDGs. Bulgaria's ODA increased significantly in 2022 to USD 240 million (preliminary data), representing 0.27 % of GNI.

Bulgarian development policy is based on the principles of effectiveness, transparency, coherence, partnership, membership, concentration and non-discrimination. Two objectives shape its vision of development co-operation: 1) its multilateral commitments to assist developing countries and promote sustainable development globally; and 2) its regional commitment to contribute to the development of transition countries in its neighbourhood, including through sharing its own experience.

Bulgarian development aid also includes humanitarian assistance, through which Bulgaria expresses its solidarity with the affected countries and persons facing emergency situations as a result of large-scale natural and other disasters or armed conflicts. Bulgaria's humanitarian action is led by the universal humanitarian principles of humanity, neutrality, independence and

impartiality. Around 20 % of the overall budget for development cooperation for 2022 is dedicated to humanitarian aid.

To guide the implementation of its policy framework, Bulgaria develops Mid-Term Programs for development assistance and humanitarian aid setting out geographical and thematic priorities. Bulgaria's efforts are mainly geared towards sharing its experience from the process of transition to democracy and market-oriented economy with the countries from the Western Balkans and the Eastern Partnership. The current Mid-Term Program for the period 2020-2024 further develops and enriches the geographical and sectoral priorities and expands the circle of participants. It is a proof that from a primarily recipient of development aid, Bulgaria country is increasingly establishing itself as a donor actively preparing for the implementation of one of its most important foreign policy tasks - membership in the Organisation for Economic Co-operation and Development (OECD).

Since 2018 Bulgaria has a participant status in the OECD Development Assistance Committee (DAC).

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