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Green Development: An Opportunity for CEE?

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A Greener CEE: A Dream That Just Might Be

When we thought that the year 2020 will go down as the *annus terribilis* of the century, 2022 came, and what has already been challenging due to the COVID-19 pandemic, gave way to yet another terrifying crisis. With the brazen Russian aggression on Ukraine and the war that has ensued, the EU border has become a battlefield of core European values pitted against terror and authoritarianism. The energy crisis followed, a painful side-effect of the war, with the spikes in energy prices reaching unprecedented levels. The citizens of Europe – regardless of which part of the continent they inhabit – once again started to fear for their livelihood.

The challenges lying ahead are real, and the CEE must brace itself for the hurdles it will need to overcome. This being said, let us remember that – to quote H.D. Thoreau – "*Not till we are lost, in other words not till we have lost the world, do we begin to find ourselves, and realize where we are and the infinite extent of our relations*". This is precisely what happened in the aftermath of the Russian invasion of Ukraine – Europeans have not only discovered that they are much more united than we may have initially expected, but also that by coming together and learning from one another we may emerge as a more resilient and integrated community.

Of course, the situation is far from ideal – the war in Ukraine continues, winter energy shortages are to be expected, populists still thrive in the region – and yet, not all is lost. Far from it – by taking on board and embracing innovative and progressive solutions, moving away from coal, investing in a sustainable energy transformation, and utilizing the potential and lessons learned by other member states, we may still come out of the geopolitical and energy crisis much stronger.

Nevertheless, let us not forget that the road ahead will not be an easy one. Still, *memores acti prudentes future*[1], we must prevail, as giving way to terror and aggression cannot be accepted as part of our reality – even though we will likely (and literally) *pay the price* for solidarity. This is the reason why in this issue of the *4liberty.eu Review* we are exploring various aspects of green development as a way forward for the CEE region, attempting to understand what long-term advantages, as well as short-term drawbacks, we might need to face. We trust that our Reader will find here not only captivating ideas, but also a source of empowerment – to be able to brave the storms of the energy crisis that is now trundling through Europe.

Stay energized,

O. Łakomska

Editor-in-Chief of *4liberty.eu Review*
Coordinator of the 4liberty.eu network

[1] Latin for "*mindful of things done, aware of things to come*".

Contents

Transforming the Green Deal: How to Bring Sustainability Requirements Closer to Reality?

* FILIP BLAHA

Climate change and dealing with it is undoubtedly one of the greatest challenges of our time. From an analytical perspective, it can be described as a negative externality – a situation in which party A does not bear the full costs of its actions and instead passes them on to party B. In economic theory, opinions certainly differ on the form of the solution, but there is a majority consensus on the need to address this problem. The role of economists in this challenge, rather than being in denial, should be to develop the most effective implementation of a solution that takes into account all the trade-offs as well as the stakeholders involved. In layman's terms, that is, to choose the right solution.

In the European Union (EU), the European Commission has decided that the right solution will take the form of central regulation and dirigisme. However, based on previous efforts at conservation and economic research, there is good reason to believe that central regulation is not the right way forward. As the work of economist F. A. Hayek shows[1], this form of regulation will inherently neglect local specificities, as it is unable to collect and then evaluate the amount of information needed to achieve optimal results. Furthermore, in the field of the environment specifically, Elinor Ostrom suggests[2] that in some cases the optimal regulation could only be self-regulation, which can only be achieved through decentralization or polycentric governance.

In its report on the Green Deal, the European Commission states that the transformation must take into account all relevant aspects and their interconnectedness – from the climate to the landscape to the social[3]. However, the starting line in this process is not the same for all. While the Western countries can draw on their higher economic development, which goes hand in hand with the pursuit of greater environmental protection[4], Eastern countries – such as the Visegrad Four countries (V4) – are in a very different position. Because

> MORE FLEXIBILITY IN THE EXECUTION OF THE GREEN TRANSFORMATION WOULD ENABLE CEE COUNTRIES TO CATCH UP BETTER WITH WESTERN ECONOMICS – IN BOTH ENVIRONMENTAL AND SOCIAL ASPECTS

[1] Hayek, F. A. (1946) "The Use of Knowledge in Society", [in]: *The American Economic Review*, Vol. 35(4), pp. 519-530.

[2] Ostrom, E. (2015) *Governing the Commons*, Cambridge: Cambridge University Press.

[3] European Environment Agency (2019) *The European Green Deal*. Available [online]: https://www.eea.europa.eu/policy-documents/com-2019-640-final

[4] Grossman, G. M. and A. B. Krueger (1995) "Economic Growth and the Environment", [in]: *The Quarterly Journal of Economics*, Vol. 110(2), pp. 353-377.

of the past communist regime, which had a negative impact not only on their economic development, but also on the quality of the environment[5], it will be much more difficult for these states to meet the same targets as the more developed Western economies – at least if this transformation aims to be in line with the social aspect as well.

Decentralization and regional governance are once again proving to be the best possible solution to this problem, as the key components needed for the successful transformation will differ due to the above-mentioned inequalities in economic development. For example, emission reduction targets could be more relatively distributed among countries, according to their economic development and other macroeconomic indicators, as Eastern economies are on a different starting line than Western ones in this respect. Therefore, more flexibility in the execution of the green transformation would enable CEE countries to catch up better with Western economics – in both environmental and social aspects.

YOUNGER SIBLINGS FROM THE CEE

If one compares the five founding states of the EU (Germany, Belgium, France, the Netherlands, and Italy), i.e., a group of states that can be described as 'prosperous Western economies' and also one of the main initiators of green transformation (a correlation that can be explained by the Kuznets environmental curve), with the less wealthy but dynamically developing V4 states, it can be clearly concluded that the opportunities for the green transformation of these states are structurally different [See: Figure 1][6].

> IN ONE OF THE KEY AREAS OF THE GREEN DEAL (ENERGY), THERE ARE RELATIVELY LARGE DIFFERENCES EVEN AMONG THE CEE COUNTRIES THEMSELVES

Moreover, one may also notice the different level of the compared economies in the aspect of competitiveness, ranked by the Global Competitiveness Index over the last five years [See: Figure 2]. The V4 countries are mostly ranked in the top forty or worse. The only exception is the Czech Republic, which is steadily moving towards the top thirty. However, most of the other countries compared are ranked in the top twenty or better.

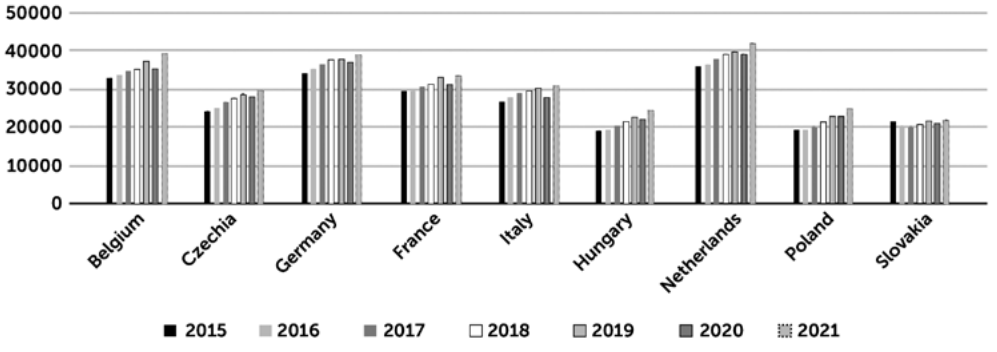
Furthermore, specialized literature focused on this economic aspect also reveals[7] that the V4 countries such as Slovakia, the Czech Republic, and Hungary belong among one of the most open economies in Europe, a fact that helps them develop

[5] https://www.nationalreview.com/magazine/2019/06/03/socialism-is-bad-for-the-environment/

[6] As we can observe in Figure 1, which shows GDP per capita over the last five years, the V4 states occupy the last four places among the countries compared.

[7] Ivanova, E. and M. Cepel (2018) "The Impact of Innovation Performance on the Competitiveness of the Visegrad 4 Countries", [in]: *Journal of Competitiveness*, Vol. 10(1), pp. 54-72.

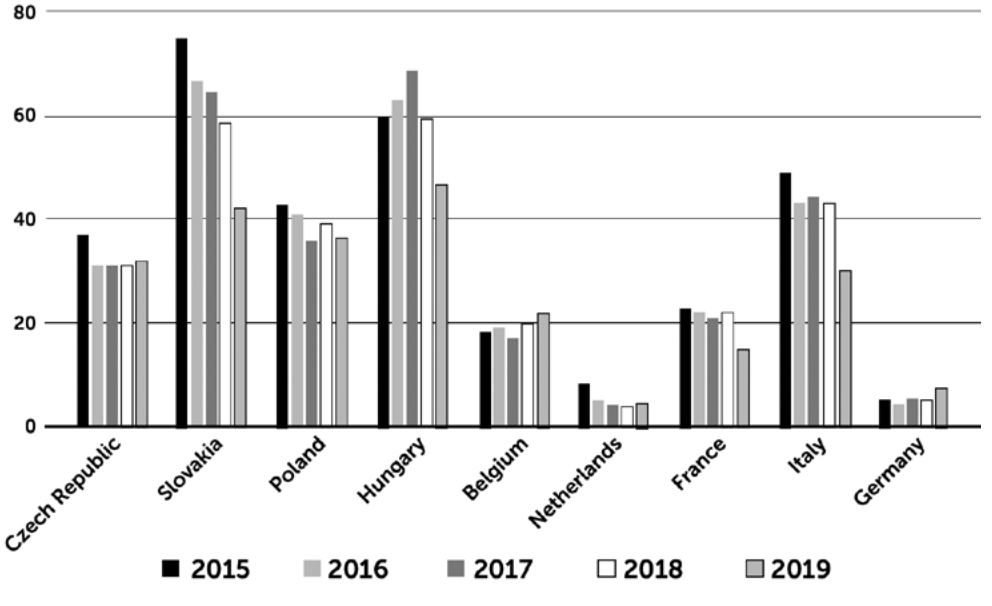
Figure 1: Gross Domestic Product per capita (PPS) annually



Source: Eurostat (2022)

Note: Current prices in EUR, purchasing power standard (PPS, from 2020) per capita

Figure 2: Global Competitiveness Index (GCI) ranking



Source: World Economic Forum (2015–2019)

Table 1: Foreign Direct Investments restrictiveness index 2020

Country	wind	hydro	solar	biofuels
Czech Republic	0.90%	4.20%	2.80%	6.40%
Slovak Republic	0%	16.70%	2.30%	5.80%
Poland	10.00%	1.90%	1.20%	5.30%
Hungary	1.90%	0.70%	7.10%	6.20%
Latvia	3.10%	45.50%	0.10%	15.10%
Estonia	14.20%	0.50%	2.10%	31.10%
Lithuania	29.20%	20.30%	2.40%	11.20%

Source: OECD (2020)

their competitiveness. Therefore, they are extremely sensitive toward the external environmental development.

This higher degree of openness of V4 economies may also be observed in the Foreign Direct Investments Restrictiveness Index (FDIRI) [See: Table 1]. Although the total results of the index do not establish a direct dividing line between Western and Eastern Member States, when looking at the individual segments the conclusions are already different. Specifically, in the primary sector, the V4 countries are close to zero (which represents no restrictions on FDI) or perform lower than most Western countries. Of these, France and Italy are the most restrictive with 0.155 and 0.13 respectively.

In the sector that will be especially formed by the environmental transformation – namely, transport – the V4 countries are also showing low barriers for the flow of FDI. On the other hand, four of the top five most restricted countries from the compared set of states are then the founding EU states (Germany and Italy), with 0.2 in transport, followed by France with 0.15.

> RENEWABLES ARE SUPPOSED TO SERVE AS THE BACKBONE OF THE GREEN TRANSFORMATION, WHILE NUCLEAR ENERGY IS MORE OF A BACKSTOP

Table 2: Share of renewable energy on production of electricity in the Visegrad four and Baltic states (2020)

Which of the following do you think is the most positive result of the EU? MAX 3 ANSWERS									
	Total	Primary sector	Trans-port	Media	Tel-ecoms	Financial services	Business services	Manu-factur-ing	Electric-ity
Czech Republic	0.01	0.025	0.075	0	0	0.01	0	0	0
Slovakia	0.049	0	0.075	0	0	0.002	0	0	0
Poland	0.072	0.05	0.092	0	0.075	0.003	0	0	0
Hungary	0.029	0	0.167	0.298	0	0.005	0	0	0
Belgium	0.04	0.035	0.114	0.023	0.023	0.024	0.248	0.023	0.023
Netherlands	0.015	0.062	0.083	0	0	0.002	0	0	0
France	0.045	0.155	0.15	0.048	0	0.054	0.003	0	0
Italy	0.052	0.13	0.2	0.363	0	0.018	0	0	0
Germany	0.023	0.069	0.2	0.025	0	0.005	0	0	0

Source: Eurostat (2020)

CEE SIBLINGS: THE FANTASTIC FOUR FROM VISEGRAD VERSUS THE TRIUMVIRATE FROM THE BALTICS

It is also crucial to show and stress that in one of the key areas of the Green Deal (energy), there are relatively large differences even among the CEE countries themselves. A comparison between the V4 countries and the three Baltic states (Latvia, Estonia, and Lithuania) is, therefore, necessary. Particularly important is the different structure as well as the level of use of renewables compared to nuclear energy. Renewables are supposed to serve as the backbone of the green transformation, while nuclear energy is more of a backstop.

In the CEE region, the Baltic states are undoubtedly closest[8] to meeting the European Commission's renewable energy requirements. Due to their local conditions, they have an excellent basis for the wind and hydro power plants, which, unfortunately, is not the case with the Visegrad-group countries, as they have no access to the sea and, therefore, cannot use it to build hydroelectric and offshore wind farms. Moreover, it is also a much less industrialized region than the V4 so they

[8] European Environment Agency (2022) *Progress Towards Renewable Energy Sources Targets*, by Country. Available [online]: https://www.eea.europa.eu/data-and-maps/daviz/countries-breakdown-actual-res-progress-11#tab-chart_2

have lower energy consumption, and reducing emissions is more accessible to them[9].

As evidenced by the Eurostat data, the smaller, coastal Baltic states can heavily benefit from their seaside location for the construction and use of onshore and potential offshore energy [See: Table 2]. In Estonia, the current network of onshore wind farms reaches a capacity of 320 MW, with plans to build an additional network with a capacity of 1490 MW based on the offshore wind. In Lithuania, the capacity of the current wind farms reaches 671 MW, an already huge network, which will be extended with planned investments for the 700 MW of offshore wind and 100 MW of onshore wind[10].

The fact that most of the larger projects in these countries are being developed purely on a commercial basis without state subsidies also needs to be stressed, as it underlines the profitability and suitability of this energy source for the Baltics' geo-climatic conditions. It seems that, in appropriate situations, even the market naturally selects renewable options.

Since offshore wind farms perform much more efficiently and do not suffer from landscape costs, they are preferred over onshore plants. However, offshores can be also described as a luxury that is unavailable to most of the V4 states. The capacity of the current network could only be extended by the onshore wind energy, which is, however, not as efficient and brings with it additional landscape costs[11]. With demands to encourage more afforestation and maintain biodiversity in the landscape, an activity that can potentially take up land seems rather counterproductive and in contradiction with the overall Green Deal philosophy.

> IN THE CEE REGION, THE BALTIC STATES ARE UNDOUBTEDLY CLOSEST TO MEETING THE EUROPEAN COMMISSION'S RENEWABLE ENERGY REQUIREMENTS

As the landlocked states and regions of the V4 (except for Poland) do not have the opportunity to construct hydroelectric power plants like the Baltic States, they cannot draw their primary source of electricity from the power of the sea either. However, the investments made so far, as

[9] The Global Economy (2020) *Share of Manufacturing – Country Rankings*. Available [online]: https://www.theglobaleconomy.com/rankings/Share_of_manufacturing/Europe/

[10] Lithuanian Wind Power Association (2021) Lithuanian statistics. Available [online]: https://lvea.lt/en/statistics/lithuanian-statistics/

[11] Tröndle, T. (2020) "Supply-Side Options to Reduce Land Requirements of Fully Renewable Electricity in Europe", [in]: *PLoS ONE*, Vol. 15(8).

> IN APPROPRIATE SITUATIONS, EVEN THE MARKET NATURALLY SELECTS RENEWABLE OPTIONS

well as those planned, clearly show which path the V4 countries want to follow and how they want to cope with geo-climate conditions unsuitable for most renewables. Specifically, this is the nuclear power route, which already forms a significant part of the electricity production (36.9% of energy production in the Czech Republic, 53.6% in Slovakia, and 46.2% in Hungary12) in the V4 countries. Although Poland does not currently have any nuclear power plants, it is planning several investments in nuclear reactors – both large- and small-sized. Hungary and the Czech Republic are also planning Small Modular Reactors. The Visegrad countries could thus be described, together with France, as leaders in this technology.

CENTRAL BULLYING OF THE YOUNGER CEE SIBLINGS

As mentioned above, the V4 countries are much less developed economies compared to Western Europe. Their openness to foreign trade and investment, which is much higher in their case than in the rest of the European Union, helps them to catch up with the rest of the EU and develop their competitiveness.

However, the European Commission wants to introduce a single EU carbon tariff as one of the tools for international enforcement of its environmental objectives – an instrument that would make the price of goods produced in countries that do not meet the same environmental criteria as the EU equal to the difference that meeting those criteria makes for EU Member States[13]. This is a prime example of the inappropriateness of central regulation. Such a policy would have quite different effects on EU member states, as a result of the diversity of individual economies. It would be more damaging to the less economically developed CEE countries, while it would be relatively less harmful to Western economies, which are not as dependent on foreign investment due to their greater economic development.

Indeed, the introduction of a carbon tariff could easily trigger a situation similar to the Trump trade wars. Back then, foreign investors not only suspended their activities because of the policies themselves, but also because of the uncertainty created by fears of a new surge in protectionism[14].

The V4 countries, which rely on the openness of their economies to further their economic development, would certainly suffer greatly from this situation. And although the need to limit economic growth at the expense of the environment is mentioned

[12] Eurostat (2020) *What Is the Source of the Electricity We Consume?*. Available [online]: https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-3b.html?lang=en

[13] European Environment Agency (2019) *The European Green Deal*. Available [online]: https://www.eea.europa.eu/policy-documents/com-2019-640-final

[14] Gunnella, V. and L. Quaglietti (2019) "The Economic Implications of Rising Protectionism: A Euro Area and Global Perspective", [in]: *ECB Economic Bulletin*, Issue 3.

> WITH DEMANDS TO ENCOURAGE MORE AFFORESTATION AND MAINTAIN BIODIVERSITY IN THE LANDSCAPE, AN ACTIVITY THAT CAN POTENTIALLY TAKE UP LAND SEEMS RATHER COUNTERPRODUCTIVE AND IN CONTRADICTION WITH THE OVERALL GREEN DEAL PHILOSOPHY

among the advocates of central environmental protection, the facts show that, in this respect, it is not a trade-off but rather a complement. Indeed, interest in environmental protection and environmental quality is on the rise in the countries that can afford to demand this so-called 'luxury good'. The eventual enforcement of the Green Deal beyond the borders of the European Union would quite probably put the CEE countries, which are already lagging behind their western neighbors in this respect, at an even greater economic disadvantage.

ALL THESE RESOURCES ARE RENEWABLE, BUT SOME ARE MORE RENEWABLE

In the energy sector, the central approach is, unfortunately, an integral part of the European Commission's plans too. In the end, however, this is just another ineffective policy that harms the CEE countries. The Commission is constantly proposing to increase the requirements for the share of renewables in gross final energy consumption, as set out in the Renewable Energy Directive. The latest proposed change is linked to the next REPowerEU energy plan and proposes an increase from 40% to 45% by 2030[15]. This is a clear tightening of the noose around the possible shape of the energy mix.

Moreover, as analyzed above, a combination of nuclear power and renewables seems to be a more sensible option for the V4 countries in view of the existing investments and their inland location. However, the European Commission's taxonomy puts nuclear energy at a significant disadvantage compared to renewables.

Undoubtedly, renewables should play an important part in the whole transformation. However, it seems that the European Commission thinks that some sources are simply more renewable. Such an attitude clearly ignores the different geoclimatic conditions of member states as well as the already existing investments in

[15] European Commission (2022) *REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast Forward the Green Transition*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

renewables, which have been made by the local governments in accordance with local characteristics.

FROM A ZERO-EMISSION TO CARBON-NEUTRAL ECONOMY

Central regulation simply does not seem to be the most effective option when it comes to environmental protection. This statement is supported by both the existing literature[16] and the analysis presented above. The way to decentralize this initially centralized plan, at least partially, and to bring it closer to the different local geo-climatic and institutional conditions of the member states is to change the objectives pursued.

The Green Deal for Europe sets an ambitious target to reduce net greenhouse gas emissions by 55% below 1990 levels by 2030, with the ultimate goal of making the European Union a zero-emission economy by 2050. The European Commission wants to achieve this goal through reforms in the areas of energy, transport, and climate, but also taxation and public investment. Within the EU recovery package, there is a target of spending 37% of the EUR 750 billion NextGenerationEU recovery fund on Green Deal objectives, and the intention to raise 30% of the NextGenerationEU budget through green bonds. Such unprecedented public spending and reforms are defended by the Commission as necessary to combat negative externalities that harm society as a whole, but also future generations. For the climate and this planet are said to be shared across time.

This assertion would not even need to be questioned if, in its planned solution, the European Commission also took into account the differences in the economies and developments of its individual member states. It commits this ignorance at the very outset, where it sets targets[17] that can then logically only be achieved through central regulation and dirigisme. Climate protection does not require such drastic restrictions. All that is needed to halt climate change is carbon neutrality, which must certainly not be confused with a complete reduction in the production of greenhouse gasses. On the contrary, carbon neutrality is compatible with the production of a certain amount of emissions and, therefore, the existence of a certain (although very limited) number of fossil fuel power stations (whether gas or coal ones), but these power stations must operate with sufficiently efficient filters to keep emissions to a minimum. The remaining emissions will

> A COMBINATION OF NUCLEAR POWER AND RENEWABLES SEEMS TO BE A MORE SENSIBLE OPTION FOR THE V4 COUNTRIES

[16] Hayek, F. A. (1946) "The Use of Knowledge in Society", [in]: *The American Economic Review*, Vol. 35(4), pp. 519-530. See also: Ostrom, E. (2015) *Governing the Commons*, Cambridge: Cambridge University Press.

[17] All the specific targets for member states have not yet been set and can be expected to differ in some respects. However, the European Commission is already influencing this flexibility quite a lot – for example, with its position on the nuclear energy.

> CENTRAL REGULATION SIMPLY DOES NOT SEEM TO BE THE MOST EFFECTIVE OPTION WHEN IT COMES TO ENVIRONMENTAL PROTECTION

then be offset by the planting of new trees, which act as a natural sink for greenhouse gasses[18].

Moving from a Pigou-style approach to climate change to a Coas-style approach would then mean that it is not necessary to ban fossil fuels to protect the environment – their use only needs to be sufficiently compensated. Member states would be allowed to retain part of the network of coal-fired power stations (on which many of them still rely for energy production), but only if they are equipped with sufficiently efficient filters and technologies to limit greenhouse gasses as much as possible. In this area, it would certainly be necessary to invest a certain proportion of the transformation expenditure in research into these technologies, which is forbidden in the current central form of European climate protection plans.

[18] https://climate.selectra.com/en/news/co2-tree

However, the retention of some coal-fired power stations and, as a consequence, the retention of some carbon emissions would still need to be compensated for. This can be aided by, specifically, planting an equivalent amount of trees and greenery.

CREATING A MARKET FOR REFORESTATION PERMITS

As may be assumed, the tree compensatory measures would not necessarily be mediated directly by those emitting states. The creation of a market with certain reforestation vouchers/permits (similar to emission allowances) could serve this purpose. Each state or entity that runs a reforestation operation and plants a certain amount of trees would receive an equivalent amount of reforestation vouchers. These could then be traded on the open market and sold to the states that wished to retain a certain amount of coal-fired energy production.

Deforestation, on the other hand, would only be possible under the condition of owning emission permits, as this process *de facto* releases CO2 into the atmosphere. This would then result in reforestation mainly in member states where this activity is least costly. The vouchers would then be demanded mainly by entities from countries where coal power is still clearly a cost-benefit efficient option in energy production (at the same price as for emission allowances).

This solution would then be able to take full advantage of different local conditions and also make the green transformation more flexible and less costly for the eastern states. Of course, there would be significant economic costs here too, but they would fall more evenly on the states and would also be much more variable and not fixed as in a centralized version.

MAKING THE TAXONOMY REDUNDANT

Given the introduction of a market in reforestation allowances, the current EU energy taxonomy, which *de facto* determines the future spread of different energy sources by favoring certain sources for both public and private investment[19], would then become redundant and be completely replaced by this mechanism. Indeed, the percentage of coal-fired power plants in the national energy mix would be determined by the newly created market, not by central European regulation. The amount of renewable energy would then also depend on this figure.

A key condition for the success of this plan should also be the end of the irrational resistance to nuclear energy, which is represented especially in the above-mentioned taxonomy. Combined with the new conditions for fossil fuels and renewables, member states would then be able to draw on a wide range of options in the transition, making their decision-making more flexible.

KEYHOLE SOLUTIONS FOR A FREER AND GREENER FUTURE

Even though the Green Deal is certainly not the most effective solution for the protection of nature (nor for the development of a free society), it is already in motion and cannot simply be abandoned. Given the current environmental and economical paradigm and political preferences, it is also unlikely that the above proposed decentralized version would be adopted. In order to shift the Overton window and at least partially change the form of the Green Deal and thus mitigate its negative consequences, the following proposed keyhole solutions could help:

> ALL THAT IS NEEDED TO HALT CLIMATE CHANGE IS CARBON NEUTRALITY, WHICH MUST CERTAINLY NOT BE CONFUSED WITH A COMPLETE REDUCTION IN THE PRODUCTION OF GREENHOUSE GASSES

- **Pro-nuclear changes in taxonomy** – Although the European Parliament has recently approved a version of the taxonomy that designates nuclear energy as a transitional renewable resource and allows investment in the upgrade of second-generation reactors until 2040, as well as investment in the construction of third-generation reactors that receive construction permits until 2045, it also obliges member states to build their own nuclear waste repositories by 2050. However, in the case of the Czech Republic, Green Taxonomy would only allow building three new nuclear sites with a capacity of 4,400 MW, which is not even half the capacity of the coal-fired plants (10,800 MW) that are planned to be shut down. The

[19] https://climate-adapt.eea.europa.eu/metadata/publications/taxonomy-final-report-of-the-technical-expert-group-on-sustainable-finance

> GREEN TAXONOMY WOULD ONLY ALLOW BUILDING THREE NEW NUCLEAR SITES WITH A CAPACITY OF 4,400 MW, WHICH IS NOT EVEN HALF THE CAPACITY OF THE COAL-FIRED PLANTS (10,800 MW) THAT ARE PLANNED TO BE SHUT DOWN

taxonomy does not limit investment in fourth-generation reactors that do not produce nuclear waste, but these are virtually non-existent today and their development is estimated to take another 20-30 years.

The first problem with this approach is, undoubtedly, the reliance on non-existent technology. Although the European Commission wants to create an incentive to invest in research into these new technologies, this incentive can work without restrictions for the construction of third-generation reactors. For example, a special fund could be created for this purpose, to which companies involved in the construction of third-generation reactors would be required to contribute. This would be a form of environmental tax to encourage the use of a substitute – a new technology. While this is not an optimal situation, it is still a comparatively better alternative than cutting off support for construction altogether.

An equally important issue is the requirement for a spent fuel repository by 2050 for every country using nuclear energy. However, some states that rely or intend to rely heavily on nuclear power do not yet have such an infrastructure and it would take around thirty to forty years to build it. It is then the responsibility of the state to build the repository, but public choice theory teaches us that governments are influenced by the political cycle and can therefore easily back out of their commitments[20].

The alternative of leasing existing storage sites to other member states could mitigate these negative effects and, at the same time, maintain the desired outcome. The states without existing infrastructure would thus benefit from the comparative advantages of other countries with existing repositories.

Of course, this approach runs the risk of resistance to nuclear waste in the importing states, but even though this solution is not without risk, it does at least allow it to be shared more widely among more stakeholders.

[20] Buchanan, J.M. and G. Tullock (1962) *The Calculus of Consent: Logical Foundations for Constitutional Democracy*, Michigan: The University of Michigan Press.

> SMALL MODULAR REACTORS (SMRS) ARE OFTEN REFERRED TO AS THE FUTURE OF (NOT ONLY NUCLEAR) ENERGY

- **Stable legal framework for the development of the small modular reactors** – Small modular reactors (SMRs) are often referred to as the future of (not only nuclear) energy. In addition to generating electricity, they can also serve as a heat source, which can be an important tool to exit Russian gas. Several European countries (such as France[21], Poland[22], and most recently the Czech Republic[23]) have already announced plans to build their first SMRs. However, due to the early stage of this technology, there is not yet a sufficient legal framework for its successful future development. For example, there is no distinction in the taxonomy between large nuclear reactors (LRs) and SMRs, even though they are diametrically opposed in terms of construction time, risks, and investment[24].

The European Commission could help the further development of SMRs in particular by taking into account their specificities in its taxonomy, where they would not be subject to the same requirements as LRs, especially in the time limits for the construction of the latest Generation III reactors. It is, on the face of it, the same technology, but with much less risk. In this area, but also in other safety and administrative regulations, the principle of 'graduation' could apply. A small yacht also does not have to meet the same safety criteria as a large ocean liner, although both can sink.

Harmonization of requirements (which is already set into motion) could be another tool for the smooth implementation of SMRs across Europe. When a particular technology is licensed in one country, the surveillance in another country may no longer require everything and take over things that have already been met, nor will it be able to prohibit something that has already been approved in another country. This step would help countries that are just considering building SMRs skip the lengthy process of ensuring safety. Instead, they will adopt the benchmarks of the other member states that have already decided to invest in SMRs and thus benefit from another of the advantages of the common market. Ideally, nuclear power plants would

[21] Zissler, R. (2022) "France's New Nuclear Power Plans and Techno-Economic Difficulties", [in]: *Renewable Energy Institute*. Available [online]: https://www.renewable-ei.org/en/activities/column/REupdate/20220128.php

[22] https://www.usnews.com/news/technology/articles/2022-07-08/polands-kghm-says-small-reactors-may-cost-2-billion-to-build

[23] Seznam.cz (2022) *Nový český plán: jaderná elektrárna do každého kraje*. Available [online]: https://www.seznamzpravy.cz/clanek/domaci-novy-cesky-plan-jaderna-elektrarna-do-kazdeho-kraje-206981 [in Czech]

[24] https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs

> EUROPE IS CURRENTLY IN AN ENERGY CRISIS, AND, AT THE SAME TIME, IT IS ALSO FACING A SHORTAGE OF KEY RAW MATERIALS

then not have to be built tediously, like airports, but smoothly (in series) and quickly (like airplanes).

- **Equating waste to energy with circular waste treatment** – EU waste management legislation sets requirements for member states to recycle 65% of waste and to landfill only 10% of waste generated. In the EU waste hierarchy, prevention and reuse are at the top of the agenda[25] – an effort supported, among others, by a ban on single-use plastics. Next in the hierarchy is recycling, followed by waste-to-energy management.

  However, the European Commission has long supported only one option for reducing landfill – the circular economy, which has in common with waste-to-energy the fact that both of these alternatives convert the raw material already used. Europe is currently in an energy crisis, and, at the same time, it is also facing a shortage of key raw materials. The choice between these two options is a clear trade-off between energy production and raw material extraction. The Commission is committing a fatal conceit if it claims to know which of these options is more efficient for the member states. Only the free market can make this choice.

  In order to overcome the energy crisis more quickly and to achieve a successful green transformation, the European Commission should, therefore, put recycling and waste-to-energy on equal footing in terms of legislation and subsidies for the necessary infrastructure. Not only would this set free the hands of many member states in the way of reducing landfill, but it would also enable individual regions and municipalities to strengthen their energy production through the waste-to-energy system and to become independent from fossil fuels. Some regions may still prefer the circular model, but this choice should be made at the national level

CONCLUSIONS

Environmental protection should be viewed with the utmost respect. It can be considered as a legitimate endeavor and, after all, one of the benefits of European economic prosperity. It must not be forgotten, however, that the same economic laws that we can observe in our daily lives apply in this case, too.

Eastern European countries are economically underdeveloped compared to the western countries. This fact makes the green transformation much more challenging for them and, if implemented incorrectly, could severely damage them

[25] https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en

economically. A rethinking of the environmental philosophy from a Pigouvian to a Coasian approach would mean introducing more flexibility in the implementation of the Green Deal itself. Introducing flexibility into the implementation of the transformation and a more liberal approach to nuclear energy could then help the CEE countries in particular to close the gap between them and the rest of the EU on green transformation.

The solutions proposed above, with humility in the face of these realities, seek to propose a path of compromise that takes into account the current requirements and paradigms in environmental protection. At the same time, these are partly guided by the economic principles of our world that should not be ignored.

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Taxing Global Warming: Externalities and Dealing with Them

* TOMASZ KASPROWICZ

Free markets tend to provide optimal allocation of resources, but this outcome depends on a set of assumptions[1]. Of course, these assumptions are never fully met, but the distortions arising from deviations from optimal conditions are usually small and do not warrant intervention to correct them. This policy is confirmed by general higher effectiveness of free-market economies over centrally planned ones. This phenomenon was conclusively proven by the collapse of centrally planned economies of socialist countries when pitted against free-market-driven capitalist systems – which came as a surprise even to some western economists as late as 1984[2].

There are, however, cases when violations of conditions that are required for markets to function properly are so severe that we observe market failure. It is a situation when there are people willing to make transactions, but for some reason they cannot. This is clearly a highly inefficient outcome and may be caused, for example, by asymmetry of information between parties in transaction[3] and causes problems in healthcare market (like high prices and worse outcomes). The less regulated healthcare market in the United States performs far worse than the much more regulated market in Europe[4].

Yet another problem is posed by externalities. These arise in situations in which activities bring harm (or benefit) to the parties not directly involved in them. Vaccinations that build herd immunity create positive externalities because 'my decision to vaccinate' benefits society as a whole – in addition to my own benefit. Widely defined pollution (ranging from industrial waste to secondhand smoking) is the most commonly used example of a negative externality. The polluter benefits from polluting, but the community pays the price in terms of health outcomes or the quality of life.

In the case of positive externalities, people will do too little of the beneficial actions, as they do not accrue full benefits. In the case of negative externalities people do too much of the bad activity as they do not bear the full cost. In such a situation, the intervention may aim to bring the intensity of these activities to optimal levels.

One approach is *command and control* of outright banning or mandating certain behavior. Vaccine mandates or compulsory education are meant to create as many positive externalities as possible. On the other hand, some actions are considered indefensible and are thus outright banned

> SCIENTIFIC CONSENSUS FIRMLY SUPPORTS THE BLEAKER SCENARIOS

[1] Debreu, G. (1984) "Economic Theory in the Mathematical Mode", [in]: *The American Economic Review*, Vol. 74(3), pp. 267-278.

[2] Samuelson, P. A. (1989) *Economics*, New York: McGraw-Hill.

[3] Akerlof, G. A. (1978) "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism", [in]: *Uncertainty in Economics*, New York: Academic Press, pp. 235-251.

[4] https://www.healthsystemtracker.org/chart-collection/quality-u-s-healthcare-system-compare-countries/

– like burning trash in one's stove. In other cases, limits are imposed, or certain additional actions required (like installing filters or creating treatment plants). These systems have the inherent problem of setting the parameters right, as they are mostly arbitrary and politically driven. Therefore, one cannot be certain whether a given ban is not creating more harm than good in the end. In most cases, no outside verification of parameters is performed, and it is difficult to imagine how this might be done. Also, the circumstances may change. In the incoming winter, due to energy crisis, burning trash may be one of the few options remaining in order to avoid freezing for certain families. The dilemma is very real.

TAXATION OF EXTERNALITIES

The alternative to command-and-control systems is trying to transfer external benefits or costs back to perpetrators in monetary form. In case of positive externalities, subsidies are introduced to convince people to undertake more beneficial actions. For example, in order to make people more likely to vaccinate, the state provides various incentives: free vaccinations, lifting isolation requirements for vaccinated, and even a lottery for the vaccinated with significant winnings[5]. One of the arguments for free education also arises from the positive externalities argument. The goal is to transmit more of the benefits to decision-makers, so they engage in an optimal level of a given activity.

On the other hand, the state may impose a tax on harmful actions in the amount equivalent to the harm done. These are known as 'Pigouvian taxes' and are likely the only taxes that improve how markets

> THE METHODS OF TAXING EMISSIONS ARE BASED ON TWO MAIN APPROACHES

operate instead of distorting them[6]. If applied correctly, the Pigouvian tax should bring down the level of harmful behavior to a market optimal level. This approach was applied to many phenomena, including obesity (sugar and fat taxes), nicotine, cannabis, and alcohol consumption (excise taxes). It is also quite common that rather a portion of proceeds from Pigouvian taxes is recirculated to the groups that are harmed by the actions taxed – for example, promoting healthy habits, addiction management, and environmental improvement. Still, the level of earmarking tends to be low[7].

The amount and method of imposing the tax is not trivial. Pigouvian taxes are superior when compared to the command-and-control approach, as they leave most of the decisions to the market and voluntary adjustment of behavior due to incentives. They also give the chance to improve how markets work – if they are set correctly. But that is a big 'if'. *If* the tax is too low, the market should work better than in its absence – but still sub-optimally. On the other hand, too large of a tax will create

[5] Law, A.C. et al. (2022) "Lottery-Based Incentives and COVID-19 Vaccination Rates in the US", [in]: *JAMA Intern Med*, Vol. 182(2), pp. 235–237. 2

[6] Kasprowicz, T (2001) "The Meaning of Taxation Effects of Various Taxes", [in]: *4liberty.eu Review*, No. 12.

[7] Cashin, C., Sparkes, S., and D. Bloom (2017) *Earmarking for Health: From Theory to Practice, Health Financing Working Paper*, No. 5.

perversions of its own – people will consume less than the optimal amount. The optimal value is the value of externalities, but it may be challenging to identify.

Firstly, the harm done by the same behavior in a different environment might be vastly different. Pollution in the middle of a city usually creates more costs than in desolate wilderness. Also, the size of the harm may change quite drastically over time and is prone to change frequently. Yet, the magnitude of the tax is still a political decision that cannot be adjusted on a daily basis, and which may be heavily distorted (whether intentionally or not). Moreover, attempts at imposing the flat tax may lead to perverse outcomes, and it is believed that the Pigouvian tax should be proportional to the level of the behavior one engages in[8].

TAXATION OF GREENHOUSE EMISSION

Emission of greenhouse gasses creates greenhouse effect, which threatens the stability of the global climate system. This, in turn, can have disastrous effects for human wellbeing. The exact size of the impact and, therefore, its valuation, is a subject of very intensive political debate where one side denies the problems, while the other shows catastrophic scenarios. As these are estimates, only time will tell which side is closer to the truth. However, scientific consensus firmly supports the bleaker scenarios. It seems that in order to maintain systemic stability, we need to maintain an increase in temperature under 1.5 ° Celsius[9].

[8] Carlton, D. W. and G.C. Loury (1980) "The Limitations of Pigouvian Taxes as a Long-Run Remedy for Externalities", [in]: *Quarterly Journal of Economics*, Vol. 95(3), pp. 559–566.

[9] IPCC (2019) *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems.*

> PRICING OF CARBON EMISSIONS IS OF UTMOST IMPORTANCE AND SPARKS CONTROVERSY

This crisis calls for radical cuts in greenhouse gas emissions (mainly CO2, but also methane, water vapor, among others) and their recapture and storage. In order to achieve this goal of net zero emissions for global energy, what is needed is not only a transformation focused on limiting the use of fossil fuels, but also stopping deforestation, limiting methane emissions from animal husbandry, and others. This is being achieved, for instance, via investments in technology in cleaner energy sources and production methods like artificial meat. Most of these technologies are still in their infancy and pose ecological problems of their own[10]. At the same time, they are at an economic disadvantage, partially because of negative externalities of burning fossil fuels not included in price. To correct for that, Pigouvian taxes are proposed or implemented.

The methods of taxing emissions are based on two main approaches. The most popular in Europe is an emission trading system.

[10] Khosroabadi, F., et al. (2021) "Analysis of Carbon Dioxide Capturing Technologies and Their Technology Developments", [in]: *Cleaner Engineering and Technology*, Vol. 5.

> HIGHER PRICES OF CARBON-INTENSIVE GOODS WILL NOT BE A DETERRENT TO BUY THEM IF THEY ARE COMPENSATED BY DIRECT TRANSFERS

Planned emission levels in a given year is set as a limit or a 'cap', and companies that pollute are required to hold permits adequate to actual emission. They have to buy them from the state or are provided for free at the level of baseline pollution from previous years (grandfathered). From an economic point of view, the method of granting permissions is of little importance, but it may serve fiscal purposes if permits are sold. Grandfathering permits may, however, create perverse incentives of inflating emissions prior to introduction of the program, in order to secure greater allotment.

The ability to trade the permits between companies serves two purposes. Firstly, it gives incentives to reduce emissions as its freed-up permits can be sold giving extra profit. Since the cap is usually lowered each year the value of permits rises increasing the incentive. Secondly, the ability to trade allows the market to sort out where the emissions are most valuable as companies that are the best in converting emissions into economic value will be able to pay the most. This way, the cost of limiting the emissions is minimized. Such an approach allows markets to mitigate at least some problems with command-and-control systems. Cap level is still arbitrary and may be too low or to high given the situation, but at least we know that existing permits are allocated in the best way possible in industries covered by the system.

These systems mostly apply within countries, but the ability to reallocate permits between countries also exists. Under the Kyoto agreement, the trading of permits is not limited to companies, but also can be performed between countries. Such transfers provide optimization not only within countries, but also among countries, which gives further benefits in terms of pace and efficiency of the process. Each international transfer needs to be validated by the United Nations Convention on Climate Change and European Commission (if it takes place within EU).

The second approach is applying a tax to emissions of each ton of CO2 (or equivalence of other greenhouse gasses). This is a pure Pigouvian tax approach. Taxation of emissions of CO2 has existed for a long time, however, sometimes indirectly or only in some respects. For example, gasoline/kerosene is heavily taxed using an excise tax. Excise tax applied on electricity has similar properties assuming most of the electricity in a given country comes from burning fossil fuels. However, it is worth noting that the taxes that were applied to CO2 emissions were largely motivated by fiscal reasons and not the externalities argument, as they predate the time when the greenhouse effect was a point of active political debate.

> ONE BIG PROBLEM WITH CARBON TAXES (AS WITH ANY TAXES) IS THAT THEY CAN BE AVOIDED

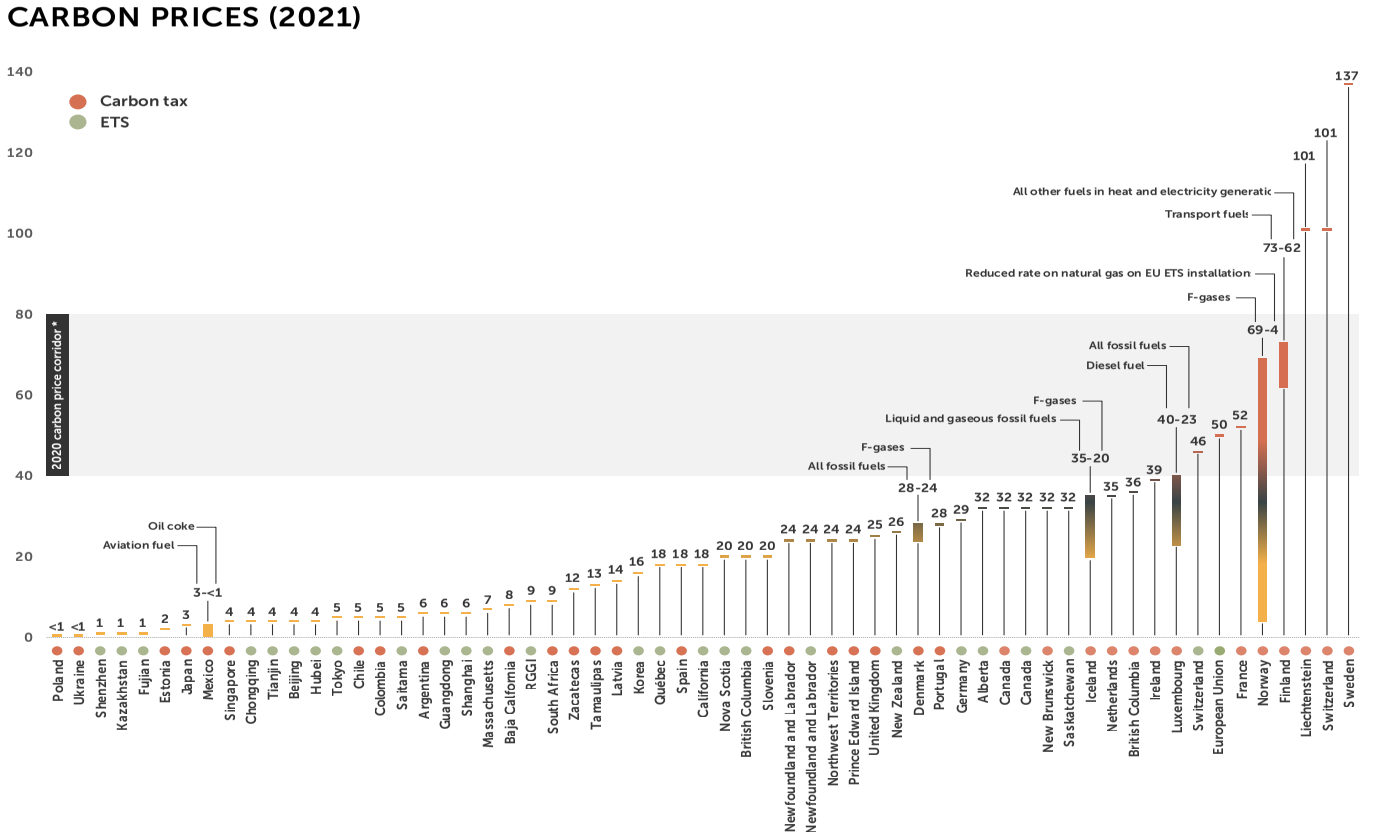
These two methods of limiting emissions by taxation have certain asymmetric properties, despite the fact that both rely on the market to alleviate at least some of the problems with arbitrary state intervention. Permit trading is a system where the cap is set at an arbitrary level, but the value of emission is market determined (given the cap). In the case of carbon taxes, the government decides the rate, whereas the market decides about the levels of emissions given the tax. Both approaches have their downsides. The 'cap and trade' system allows to manage the level of emissions quite accurately, but in case of recession or a technological breakthrough, the price of emissions may fall dramatically and discourage from pursuing more reduction. This was observed during the 2008 recession, when the permit price plummeted. Carbon tax, on the other hand, gives an unpredictable level of emissions and it is difficult to caliber it properly to attain a desired outcome, given the goals.

There also exists a 'mixed hybrid cap' as well as trade models that are imposing price caps (the state is always offering more

Figure 1: EU carbon permit price history

Source: https://tradingeconomics.com/commodity/carbon

Figure 2: Carbon prices as of April 1, 2021



Source: The World Bank (2021) State and Trends of Carbon Pricing 2021

> IN ORDER TO ACHIEVE EMISSION GOALS (AND, EVENTUALLY, ZERO NET EMISSION) CARBON EMISSIONS MUST BE OFFSET

permissions at a cap price) and price floors (one cannot trade below the floor) that tries to address some of the problems. The price floor keeps the incentive to limit emissions even during economic downturns, while the price cap is a way to prevent choking the economy by a fixed emission cap.

PRICING THE EMISSIONS

Current estimates of the social cost of carbon emissions are set at USD 3,000 per ton of CO2[11], while the IPCC suggests the price of USD 135-5500 in 2030 in order to keep the temperature increase below 1.5 ° Celsius limit[12]. At the same time, policy recommendations are at the level of USD50-200, whereas the actual prices set can be as low as USD 10 in China, and above USD 100 in only three jurisdictions[13]. This difference reflects a huge uncertainty around the estimates of the actual value of externalities associated with emissions. As future costs are impossible to objectively verify and the current outlays are potentially significant, the pricing of carbon emissions is of utmost importance and sparks controversy. The problems with setting the price of carbon are not trivial – instead, they are heavily politicized as one of the main dividing factors in today's polarized political environment, with mostly the right wing dismissing the problem, whereas the left is creating catastrophic scenarios.

When discussing carbon taxes, it is also important to take into consideration the flip side of the process. Taxing carbon can create a significant revenue stream and managing it might be as important in emission reduction as taxation itself. Such revenues could be used for research and adoption of clean technologies or carbon capture subsidies for prosumers. It is also proposed that it might be used to decrease the digressive nature of the carbon tax, as it burdens poorer households[14]. This, however, threatens to a certain degree the effect that the taxation might have on emissions. Higher prices of carbon-intensive goods will not be a deterrent to buy them if they are compensated by direct transfers.

CARBON LEAKAGE AND CARBON TARIFFS

One big problem with carbon taxes (as with any taxes) is that they can be avoided. Certain ways of doing that are actually beneficial and may lead to improving efficiency, changing technology to a cleaner one, or

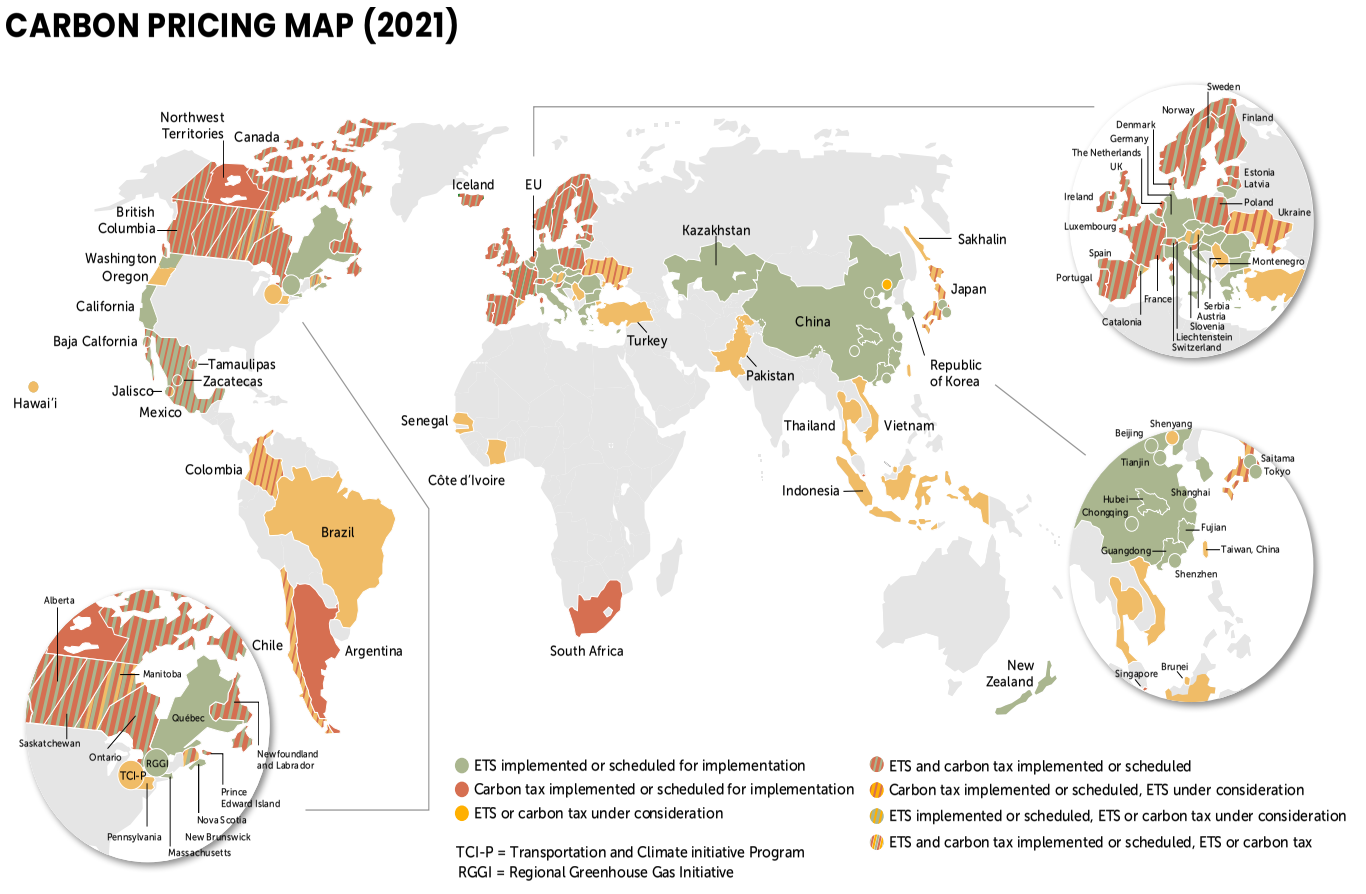
[11] Kikstra, J.S. et al. (2021) "The Social Cost of Carbon Dioxide under Climate-Economy Feedbacks and Temperature Variability", [in]: *Environmental Research Letters*, Vol. 16(9).

[12] de Coninck, H. et al. (2018) "Chapter 4: Strengthening and Implementing the Global Response", [in]: *IPCC SR15*, pp. 313–443.

[13] https://www.globalelr.com/2021/08/chinas-national-ets-launches-trading/

[14] Ravigné, E., Ghersi, F., and F. Nadaud (2022) "Is a Fair Energy Transition Possible? Evidence from the French Low-Carbon Strategy", [in]: *Ecological Economics*, Vol. 196.

Figure 3: Carbon tax adoption



Source World Bank (2021) State and Trends of Carbon Pricing 2021

> IT IS ESTIMATED THAT ABOUT 6 GIGATONS OF CO_2 WILL HAVE TO BE CAPTURED GLOBALLY PER YEAR BY 2050

reducing overconsumption and waste. But as carbon taxes are neither universal nor equal, there is room for geographical arbitrage.

A lack of low carbon taxes give states that are not implementing them an advantage in attracting high-emission industry. As CO2 moves freely in the atmosphere, the net result of such a transfer might be negative due to more transportation of products needed and the possibility of using even dirtier (but cheaper) technologies than originally applied[15].

This fact is often cited by the opposition to emission regulation. The parties that oppose limiting emissions claim that applying carbon tax brings no overall benefits, as global emissions remain unchanged (even if they fall in one country) or even grow, while the economy of the host country is hurt by the industry moving out. This argument is not without its merits and requires addressing[16].

One attempt to limit carbon leakage are carbon tariffs. The tariff would be applied to imports of emission-generating goods manufactured in the countries that does not adopt carbon taxing (or adopts lighter versions of the regime). This is supposed to level the competitive field and discourage moving the production out of the countries implementing carbon taxes. In 2021, the European Union proposed such a mechanism, called the 'carbon border adjustment mechanism' (CBAM). It is not exactly a tariff per se, but rather a requirement to buy permission in case you import goods from outside of the EU – just as if they were manufactured inside the European Union. The permits are generated outside of the cap, but at the price mirroring the price of permissions on the market. This mechanism shall apply to iron and steel, cement, fertilizer, aluminum, and electricity generation, and will be potentially extended to other goods. The mechanism shall be initially operational in 2025 and cover all sectors by 2030[17].

This idea (so far applicable to the EU) is also politically controversial – but mostly on the international scene. Developing countries that were benefiting from arbitrage (mainly China) due to carbon leakage find the carbon tariffs to be a kind of trade protectionism and are threatening with retaliation via trade wars. The stance of the United States is also somewhat fluid, as it varies between opposition and joining the mechanism (together with Canada and the United Kingdom), as the EU plan will eventually cover

[15] Barker, T. et al. (2007) "11.7.2 Carbon leakage", [in]: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, eds. B. Metz et al., Cambridge and New York: Cambridge University Press.

[16] Marcu, A. (2013) "Carbon Leakage: An Overview, [in]: *CEPS Special Report*, No. 79.

[17] European Commission (2021) *Carbon Border Adjustment Mechanism: Questions and Answers.* Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661

> CARBON CAPTURE AND REDUCTION TECHNOLOGIES ARE NEW AND STILL EXPENSIVE

USD 17 billion of US exports[18]. It is also doubtful whether such tariffs are compatible with the WTO rules[19]. Expansive interpretation of the GATT Border Adjustment Taxes may be a solution to this conundrum, but it remains legally doubtful[20].

In order to address these doubts and take into account the needs of the developing countries, there is a proposal to recirculate the funds obtained back into the exporter countries and investing them in green transformation there[21]. This strategy includes investments in renewable energy sources and green technologies. Such an approach would double the impact of tariffs on emission reduction.

CARBON OFFSET

Some industries require fossil fuels at the current level of technology, and it is not feasible to phase them out. These include such vital activities as cement production or steelmaking. In order to achieve emission goals (and, eventually, zero net emission) carbon emissions must be offset.

Carbon offset can be roughly divided into two types: *negative emission technologies* and *reduction in emissions*.

Negative emission technologies (NET) are a catch phrase covering all sorts of technologies that allow to capture carbon from the atmosphere and is, in principle, opposite to emission. NET can be grouped into several categories:

- **carbon capture and storage** – technologies that chemically bind CO2 that can then be stored underground or recycled into other processes;
- **enhanced weathering** – a process that accelerates natural carbon removal trough weathering of rocks;
- **forestation including reforestation**;
- **biochar** – storing carbon in soil in stable form after pyrolysis of organic matter;
- **ocean fertilization** – increasing biomass of ocean;
- **soil carbon sequestration** – increasing the amount of carbon stored in topsoil.

[18] https://www.scientificamerican.com/article/how-the-u-s-is-preparing-for-europes-carbon-tariffs/

[19] According to the WTO's *General Agreement on Tariffs and Trade* (1947), note 19, art. 1, "*[A]ny advantage, [favor], privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties*".

[20] https://harvardlawreview.org/2022/04/the-promise-and-perils-of-carbon-tariffs/

[21] Strand, J. (2020). *Supporting Carbon Tax Implementation in Developing Countries through Results-Based Payments for Emissions Reductions*, Policy Research Working Paper, No. 9443.

Taking into consideration that emission reduction is progressing too slow to keep climate stability alone, geoengineering and carbon capture technologies are required as a temporary or permanent elements in maintaining said stability. It is estimated that about 6 gigatons of CO2 will have to be captured globally per year by 2050[22].

On the other hand, emission reduction concerns technologies that allow for a faster decrease in quantity or change of the quality of greenhouse gasses. The most well-known is, of course, the use of renewable energy sources and increasing energy efficiency. However, there are technologies that seem more exotic – like methane collection and combustion. Methane from agricultural activities or landfills is captured and burned. Resulting CO2 is far less damaging than methane. The same applies to other chemical agents which may have greenhouse contribution many times greater than CO2. These include hydrofluorocarbons and perfluorocarbons, which can be rather easily captured at an emission site and destroyed.

If the emissions create negative externalities and should be taxed, then the activities that are capturing carbon create positive externalities – and thus should be subsidized. Projects creating carbon offset that is accredited by the United Nations Framework Convention on Climate Change are linked with the emission trading system – either under the Kyoto Protocol or the EU Emission Trading Scheme[23].

> THE TOPIC OF GLOBAL WARMING BECAME HIGHLY POLITICIZED

Carbon capture and reduction technologies are new and still expensive. For one, they are energy extensive (and, hence, require a renewable energy source to stay net-emission negative) and cost USD 750 per ton of CO2 stored, which is much lower than the price of emissions, as mentioned earlier. The costs are falling, and newer technologies promise the range of cost to be at the level of USD 100-200 per ton. Clearly, this is still high, but it is already approaching acceptable levels[24].

The problem of carbon offset technologies is that many types of offsets are difficult to verify, whereas the quality of certification methods is questionable[25]. Moreover, the parties engaged in these schemes specify parameters that are the most beneficial for them – for instance, inflating past emissions, comparing targets with the worst-case scenario, and not the most likely scenario. Some activists claim that carbon offset technologies give misleading feelings that not much will change as we will offset all of the emissions somehow.

[22] Fuss, S. et al. (2018) "Negative Emissions –Part 2: Costs, Potentials and Side Effects", [in]: *Environmental Research Letters*, Vol. 13(6).

[23] UNFCCC (1997) *Kyoto Protocol*. Available [online]: http://unfccc. int/kyoto_protocol/items/2830. php

[24] https://policyexchange.org.uk/four-negative-emission-technologies-nets-that-could-get-us-to-net-zero/

[25] Morgan, J. (2021) "Offsetting Is a Dangerous Climate Lie", [in]: www.illuminem.com. Available [online]: https://illuminem.com/illuminemvoices/6f8f62e0-ba48-41e9-b690-723930d9a23e

This phenomenon slows down the actual required transformation[26].

CONCLUSIONS

The topic of global warming became highly politicized. Powerful and numerous groups depend on extracting and burning fossil fuels[27]. These include energy companies and their workers, mining companies, and even entire nations dependent on energy exports (like Saudi Arabia or Russia). Yet, it seems that the sense of imminent existential threat has settled in, and many countries are willing to tackle the problem. Taxation of emissions is one of the most popular approaches, but carbon taxes and tariffs make for a highly controversial political topic. The largest polluters approach the idea of carbon taxation and tariffs either partially (the United States) or very cautiously (China). The difficult story of ratifying the Kyoto and Paris agreements allows only for cautious optimism.

The European Union is the leader in setting ambitious goals in emission reduction – however, at a risk to its economy due to carbon leakage. This policy still enjoys popular support, despite political forces questioning global warming altogether. The test to these sentiments will come soon, with an energy crisis in the winter of 2022, which might bring popularity to fringe, extreme parties. Still, carbon taxes are proposed as the most optimal tool from the economic point of view to achieve emission targets. However, the application of carbon taxes is still limited, so we cannot be convinced of its actual effectiveness.

Taxing the emissions correctly is a challenging task. On the one hand, there is the issue of setting the parameters right. Europeans need reduction quick, but it cannot lead to the collapse of our economy while doing it. Also, we want the reduction to be of a global nature – not just shifting it around the globe. This is the role of carbon tariffs that is currently being discussed.

The discussion concerning the taxation usually omits the ways tax revenues are spent, which is no less important in reducing emissions. Pooling the revenues seems to be the worst approach, whereas redirecting it into green transformation domestically and internationally appears to be the most efficient use of the money. One must remember that the lowest hanging fruits are usually in developing countries, so spending the money in the form of foreign direct investment (or even foreign help) might be the best way to move forward. It may also ease the opposition to carbon tariffs, which are badly needed in order to limit carbon leakage.

*

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[26] Smith, K. (2007) *The Carbon Neutral Myth: Offset Indulgences for Your Climate Sins*, Amsterdam: Transnational Institute.

[27] https://www.politico.eu/article/europe-emissions-climate-change-lobbying-war/

Emission Reduction and Slovak Industry

* MARTIN VLACHYNSKÝ

The European Union (EU) produces around 8%[1] of global greenhouse gas emissions. As a consequence, it has set itself a binding target of achieving carbon neutrality by 2050[2]. As a step toward this goal, the EU has also raised its 2030 climate ambition considerably, by committing to cut emissions by at least 55% by 2030 relative to the 1990 levels (compared to a previous target of 40%)[3].

These ambitions will inevitably have a serious impact on European economies – especially on industry. Therefore, let us inspect the current 'emission environment' in Slovakia, describe the proposed path towards reaching the carbon goals, and provide some critique.

EMISSIONS IN SLOVAKIA

Slovakia is one of the most industrialized countries in Europe, with industry (excluding construction) composing 22% of the gross domestic product[4] [See: Figure 1].

Similar to many post-socialistic economies in Europe, GHG emissions have significantly dropped in Slovakia since 1990[5]. Slovak GHG emissions decreased by almost 40% between 1990-2000, and the decrease in emissions continued until 2015[6]. This was caused by several factors: a decline of heavy industry during the transformation period,

> SLOVAKIA IS ONE OF THE MOST INDUSTRIALIZED COUNTRIES IN EUROPE

introduction of modern (cleaner) technologies, construction of two additional nuclear reactors (but with two older decommissioned in 2006 and 2008), power production decline in thermal powerplants, fuel switch in heating, and housing reconstruction with focus on energy efficiency.

Industry, power/heat, and residential/commercial sectors recorded the key GHG emission declines. Meanwhile, the transport sector observed slight gains, mainly due to a rapidly growing vehicle fleet in the country during the past thirty years[7] [See: Figure 2]. The decline is more pronounced when compared to GDP[8] [See: Figure 3]. When it comes to carbon intensity measured by emissions weighted by production (GDP), Slovakia falls into the average in Europe[9].

[1] European Environmental Agency (2020) *EU Greenhouse Gas Emissions Kept Decreasing in 2018, Largest Reductions in Energy Sector*. Available [online]: https://www.eea.europa.eu/highlights/eu-greenhouse-gas-emissions-kept

[2] https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2050-long-term-strategy_en

[3] Ibid.

[4] Eurostat (2022) Gross value added and income by A*10 industry breakdowns [nama_10_a10].

[5] https://www.mfsr.sk/files/archiv/35/Decarbonization-of-the-Slovak-economy-by-2030_study-062022.pdf

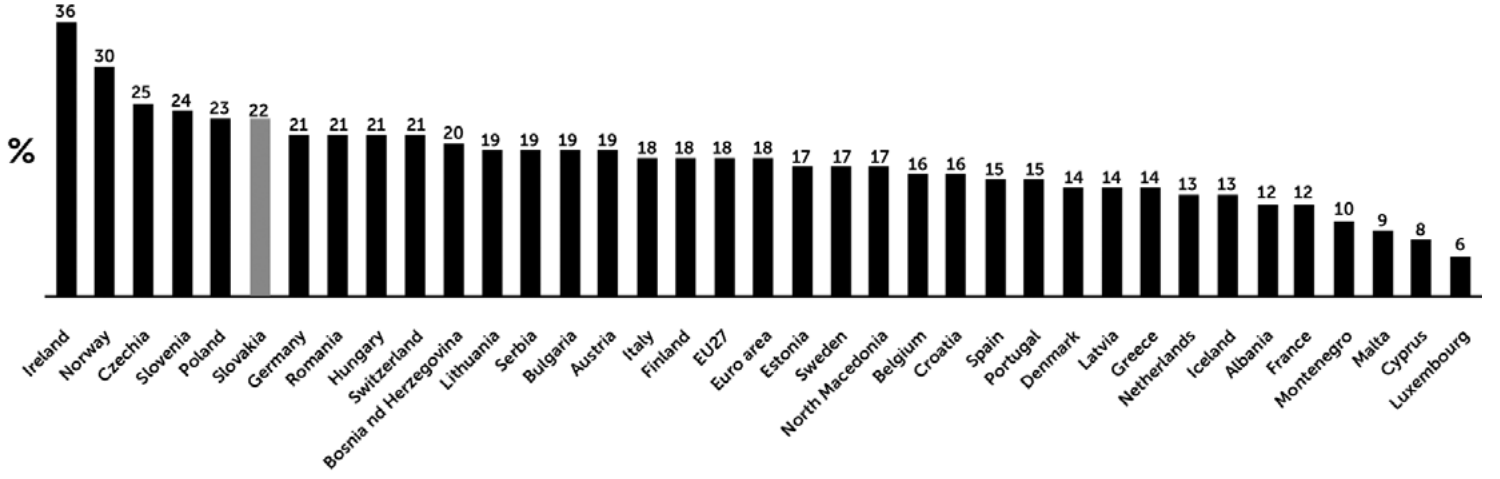
[6] Ibid.

[7] Ibid.

[8] World Bank (2022) CO2 Emissions (kg per PPP $ of GDP) – Slovak Republic, European Union. Available [online]: https://data.worldbank.org/indicator/EN.ATM.CO2E.PP.GD?locations=SK-EU

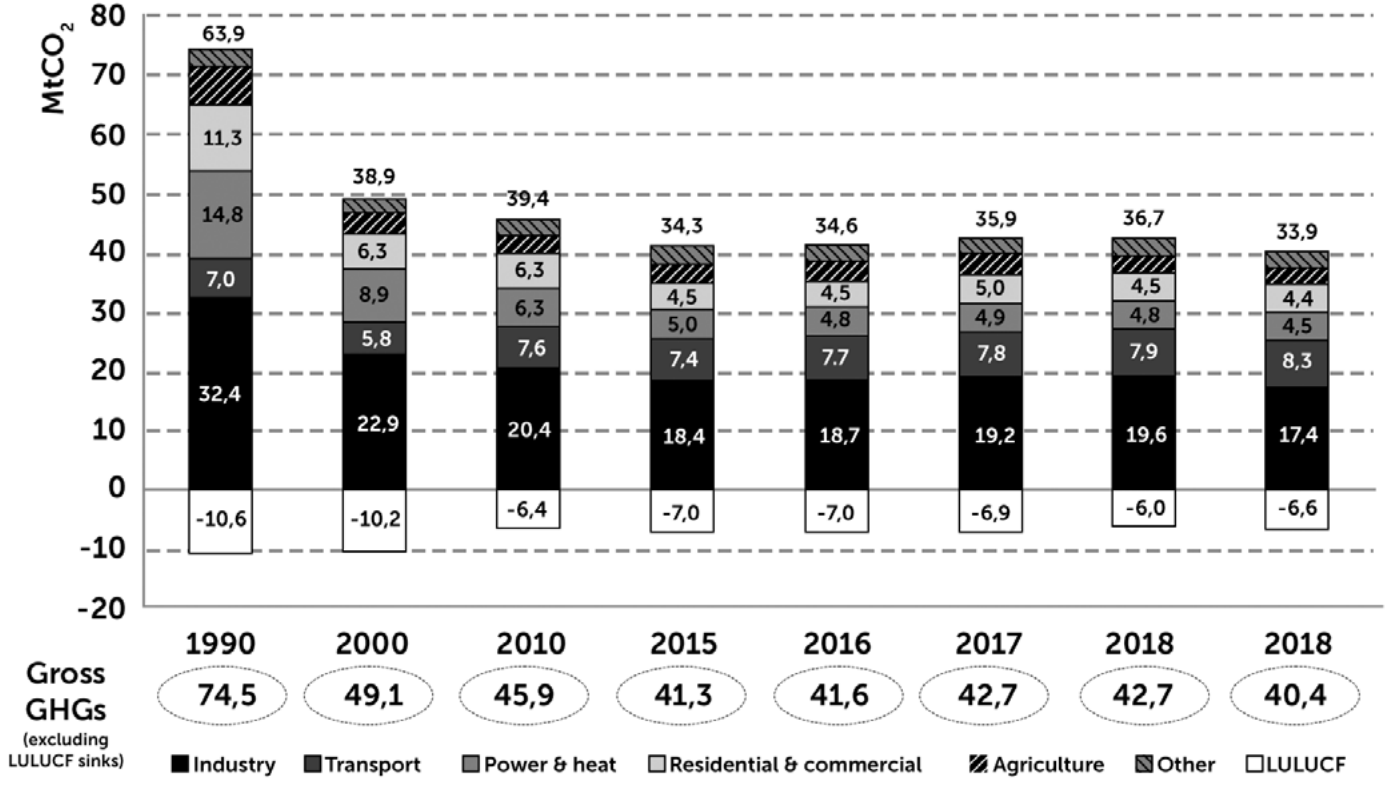
[9] Our World in Data (2018) *CO_2 Emissions Per Capita vs GDP Per Capita*. Available [online]: https://ourworldindata.org/grapher/co2-emissions-vs-gdp?zoomToSelection=true&time=2020..latest&country=ALB~AUT~BLR~BEL~BIH~BGR~HRV~CYP~CZE~DNK~EST~FIN~FRA~DEU~GRC~HUN~ISL~IRL~ITA~LVA~LTU~LUX~MLT~MDA~MNE~NLD~MKD~NOR~POL~PRT~ROU~RUS~SRB~SVK~SVN~ESP~SWE~CHE~UKR~GBR

Figure 1: Industrial production (excluding construction) share on GDP (2021)



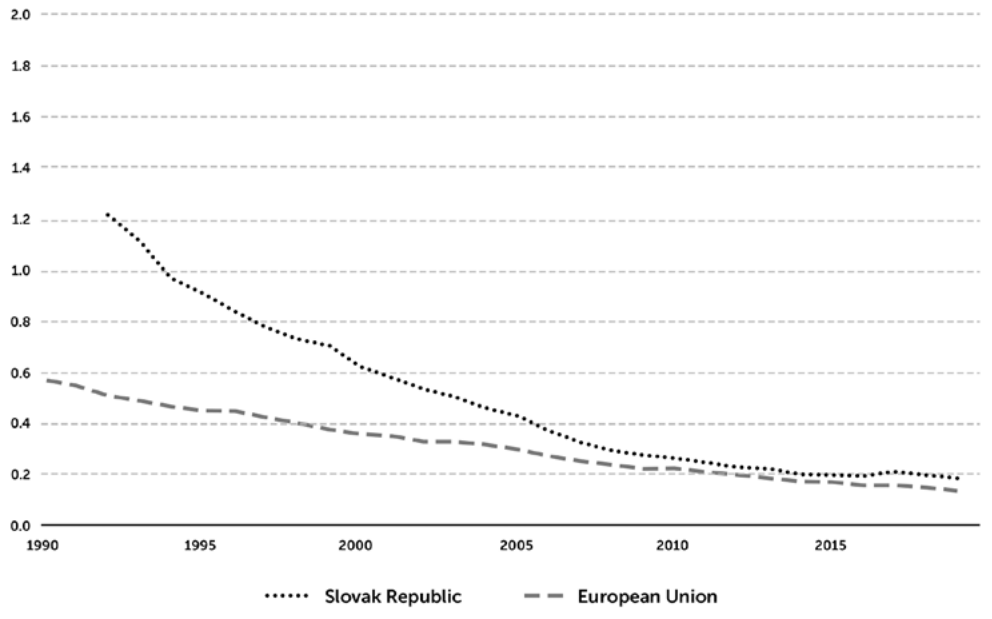
Source: Eurostat

Figure 2: The development of Slovak GHG emissions



Source: EEA

Figure 3: CO2 emissions (kg per PPP USD of GDP)



Source: Eurostat

> SIMILAR TO MANY POST-SOCIALISTIC ECONOMIES IN EUROPE, GHG EMISSIONS HAVE SIGNIFICANTLY DROPPED IN SLOVAKIA SINCE 1990

Talking in numbers, Slovak gross GHG emissions dropped from 74.5 MtCO2 in 1990 to 40.4 MtCO2 in 2019[10]. However, due to lower sequestration (attributed to the reduction in land use, land-use change, and forestry), the net effect was a bit smaller, with net emissions falling from 63.9 MtCO2 to 33.9 MtCO2[11]. To reach a 55% GHG reduction in Slovakia from the 1990 levels by 2030, a further 5-7 MtCO2 will have to be eliminated, compared to the current years. Looking at the sectoral structure, it is obvious that the industry (currently emitting 17-19 MtCO2 annually, depending on the current economic activity) will have to bear a substantial part of this reduction.

[10] https://www.mfsr.sk/files/archiv/35/Decarbonization-of-the-Slovak-economy-by-2030_study-062022.pdf

[11] Ibid.

[12] MH Teplárenský holding, which is a holding of several smaller state-owned heating companies, was excluded.

Table 1: 10 biggest emitters in Slovakia[12]

Company	Primary sector	2021 GHG emissions MtCO2	Share on total national GHG
US Steel	Metallurgy	8.97	21.9%
Slovnaft	Rafinery	2.24	5.5%
Slovenské elektrárne	Power	1.41	3.5%
Danucem	Cement	1.38	3.4%
Duslo	Chemicals	1.07	2.6%
ZSE elektrárne	Power	0.85	2.1%
Carmeuse	Cement	0.51	1.2%
Považská cementáreň	Cement	0.50	1.2%
SMZ	Raw materials	0.33	0.8%
Slovalco	Metallurgy	0.29	0.7%

Source: ICZ Slovakia a. s. and author's own elaboration

Table 2: Sectoral share on national GHG

Industry	2021 Share on national GHG (author's own estimation)
Metallurgy	23%
Rafinery/Chemicals	8%
Cement	6%
Power	6%
Materials	1%

Source:: ICZ Slovakia a. s. and author's own elaboration

> SLOVAKIA IS A SMALL COUNTRY, AND THE INDUSTRY IS STANDING ON THE PILLARS REPRESENTED BY SEVERAL BIG COMPANIES. A SINGLE COMPANY (US STEEL) IS RESPONSIBLE FOR MORE THAN HALF OF THESE TOP TEN EMISSIONS

Slovakia is a small country, and the industry is standing on the pillars represented by several big companies. Therefore, the key carbon emitters can be easily counted[13] [See: Table 1]. The ten biggest industrial emitters contribute more than 40% of the total national GHG emissions. A single company (US Steel) is responsible for more than half of these top ten emissions, the top five generate more than one third of Slovakia's total GHG emissions.

It is obvious that to reach the 55% reduction goal, the Slovak strategy will have to be specifically oriented on several companies – most notably US Steel. Let us have one more look at the statistics via sectoral division. [See: Table 2]. Any GHG reduction strategy will have to focus on three specific industries – metallurgy, chemicals, and cement. Power generation has a special role since electrification is a key to decarbonization in all other sectors.

THE PLANS...

There are two official documents related to strategies for reaching the 55% GHG reduction goal in Slovakia. One (we may call it the 'prelude') was published by the World Bank in early 2019[14]. Due to its age, it works with older data but offers a more theoretical approach towards GHG emission reduction. There are four decarbonization scenarios analyzed for Slovakia in the document, which have been designed as contrasting combinations of energy efficiency and renewable targets, representing the trade-offs between targets. All four decarbonization scenarios involve the construction of new nuclear generation capacity for Slovakia, continuing the importance of nuclear energy in the generation mix, but they differ in the extent to which renewables enter the generation mix. The study focuses on macroeconomic modelling the scenarios (GDP changes, consumption changes, emissions changes)

[13] ICZ Slovakia a. s. (2022) *Stav plnenia podmienok pre prevádzky v Slovenskej republike za rok 2021*. Available [online]: http://emisie.icz.sk/files/Stav_plnenia_podmienok_2021.pdf [in Slovak]

[14] http://documents.worldbank.org/curated/en/772561553850127627/pdf/A-Low-Carbon-Growth-Study-for-Slovakia-Implementing-the-EU-2030-Climate-and-Energy-Policy-Framework.pdf

– the economic impacts of a low carbon growth path. It does not go into detail how exactly the reduction will happen, instead focusing on modelling electricity demand and generation.

> ALL FOUR DECARBONIZATION SCENARIOS INVOLVE THE CONSTRUCTION OF NEW NUCLEAR GENERATION CAPACITY FOR SLOVAKIA, CONTINUING THE IMPORTANCE OF NUCLEAR ENERGY IN THE GENERATION MIX, BUT THEY DIFFER IN THE EXTENT TO WHICH RENEWABLES ENTER THE GENERATION MIX

A much more specific decarbonization strategy was published[15] by the Value for Money Department under Ministry of Finance of the Slovak Republic in cooperation with Institute of Environmental Policy (analytical unit under the Ministry of Environment) and the Boston Consulting Group in May 2022. To model the most cost-effective path of decarbonization, the strategy utilizes a marginal abatement cost curve (MACC). The curve is marginal in the sense that it estimates the cost of abatement for the next (cheapest) unit of GHGs.

The strategy contains 58 specific actions (or 'levers', as the authors call it), each with GHG reduction size estimation and with cost (both capital cost and net present value of operational cost) estimation per ton of GHG saved. These levers are ordered according to their cost from the 'cheapest' ton saved to the most expensive tons. 18 levers have negative cost, since these often represent expected savings (closure of subsidized lignite powerplant, gradual switch from gas heaters towards more efficient heat pumps etc.). On the other hand, the most expensive levers are mostly represented by carbon capture and storage options [See: Table 4].

The complete list provides options to save around 20 MtCO2 – way above what is needed to reach the 55% reduction goal in Slovakia (around 5-7 MtCO2). Implementing all the levers would bring a 76% reduction in emissions compared to the 1990 levels (but not carbon neutrality!) and would cost over EUR 13.5 billion according to the authors, representing around 13% of current Slovak GDP.

[15] https://www.mfsr.sk/files/archiv/35/Decarbonization-of-the-Slovak-economy-by-2030_study-062022.pdf

> IMPLEMENTING ALL THE LEVERS WOULD BRING A 76% REDUCTION IN EMISSIONS COMPARED TO THE 1990 LEVELS

This 'maximalist' option is for now a more hypothetical one. Many suggested technologies (especially carbon capture and storage) are far from industrial-scale availability[16].

For the 'minimalist' 55% reduction target, the societal costs exceed EUR 2.7 billion – the majority of which is on the shoulders of decentralized emitters. This scenario employs 33 out of the 58 levers, reducing thus 6.3 MtCO2. Most importantly, it does not include two levers implementing construction of two electric arc furnaces in US Steel (with the potential to reduce further 4.6 MtCO2) nor the interconnected direct cast-and-roll technology (another 1.5 MtCO2). These two levers fall into middle scenario, which comes with 67% reduction since 1990 and the price tag of EUR 5 billion.

The most important levers in the minimalist (55 % GHG reduction) scenario are the closures of Nováky and Vojany coal powerplants, bringing alone 2.2 MtCO2 savings out of the total 6.3 MtCO2. These levers are almost costless, since before the Russian attack on Ukraine, these powerplants were struggling to operate profitably. Counting the closure of Nováky coal mine (another 0.2 MtCO2 saving), which is heavily subsidized, these three levers (two powerplants and a mine) should bring substantial financial savings.

Overall, the minimalist scenario looks encouragingly optimistic – the GHG reduction is reaching the set goal for a very modest financial price and the levers listed do not employ any underdeveloped technological solution. However, the model works with numerous simplifications and dubious assumptions. These influence the minimalist model, but become even more pronounced when we look at the levers added in the medium and maximalist reduction scenario. One shall remember that the long-term EU goal is carbon neutrality – so even the most complete list for the maximalist scenario (76% reduction in emissions compared to the 1990 levels) will not be enough.

... AND THE PROBLEMS

Every analysis has to work with assumptions, simplifications, and limitations. If we start to analyze every lever (and every assumption preceding the implementation of these levers) in the analysis, we will discover many discussion points. However, to ensure we keep within the space and topic limitations of this text, let us focus on several key issues.

SUPPLY CAPACITY

There are numerous levers which foresee spreading of a specific kind of technology or fuel: electric vehicles, heat pumps,

[16] Ma, J. et. al. (2022) "Carbon Capture and Storage: History and the Road Ahead", [in]: *Engineering*, Vol. 14, pp. 33-43. Available [online]: https://www.sciencedirect.com/science/article/pii/S2095809922001357

waste fuel, biomass, and biofuel... These inputs have their price, which is duly noted by the analysis, but their sufficient supply might be a problem (e.g., biomass). In numerous cases, these levers even have negative costs due to the assumption that the new technology will have lower operating cost, thus not only covering the capital expenditure, but also providing lifetime cost savings. These assumptions are based on existing comparative models and lifetime cost calculators (for example EV vs ICE vehicle)[17].

However, the levers often expect mass adoption of the new technology, happening in a relatively brief timeframe (the year 2030 being the latest). Moreover, almost identical actions (adoption of EVs, heat pumps, and fuel switch) will be happening all across Europe at the same time. Therefore, supply constraints may arise, which will either prohibit the spread in sufficient numbers, or will substantially rise the expected cost beyond modelled expectations.

One shall not underestimate markets, which are able to react on demand pressure and rise supply with often surprising speed and quantity (as proven during the pandemics). However, the supply constraint factor cannot be completely disregarded, especially counting in the massive rise in global uncertainty, stemming from the war in Ukraine. Also, some of these constraints may be rooted in regulation and thus difficult for the markets to overcome (for example, alternative fuel for cement industry is based on waste, but waste collection and sorting is fully dependent on regulations).

> THE LONG-TERM EU GOAL IS CARBON NEUTRALITY

POPULAR BACKLASH

At the moment of writing, farmers in the Netherlands have been staging massive protests for weeks. The core reason is the proposed reduction of livestock numbers due to emissions[18]. Clearly, some of the levers will require direct contribution from citizens and some costs could be easily traced to the green policies even by laymen, which may generate popular backlash against such a policy. Further reduction of livestock is proposed among the levers of the decarbonization study, despite the fact that the number of cattle in Slovakia already fell below 45% of the 1993 number.

TECHNOLOGY READINESS

While the 55% GHG reduction limit is theoretically reachable without the need to implement immature technology, carbon neutrality is not – it will require carbon capture and storage and a new array of hydrogen technologies. Some industries (especially the cement industry) rely on chemical processes, which emit CO2 by its chemical nature.

[17] Such a calculator was, for example, constructed by the co-author of the study, the Institute of Environmental Policies, in 2019. Available [online]: https://minzp-iep.shinyapps.io/auta/ [in Slovak]

[18] BBC (2022) *Why Dutch Farmers Are Protesting over Emissions Cuts*. Available [online]: https://www.bbc.com/news/world-europe-62335287

> WHILE THE 55% GHG REDUCTION LIMIT IS THEORETICALLY REACHABLE WITHOUT THE NEED TO IMPLEMENT IMMATURE TECHNOLOGY, CARBON NEUTRALITY IS NOT – IT WILL REQUIRE CARBON CAPTURE AND STORAGE AND A NEW ARRAY OF HYDROGEN TECHNOLOGIES

BEHAVIORAL CHANGES

Few levers expect behavioral changes from the citizens and company managers, albeit nudged by prices and infrastructural improvements. A best representative lever is the mode shift for passenger transport. Increased fuel prices and denser public transport will motivate citizens to switch transport modes. Nevertheless, status effect, sunken cost fallacy ("*I will drive a car there, because I already paid for the car*") and some other effects are difficult to quantify.

MANAGERIAL AND PUBLIC ADMINISTRATION CHALLENGE

Reaching the minimalist 55% GHG reduction goal will require implementation of around thirty levers. When analyzing the lever on a one-by-one basis, they seem more or less challenging, but reasonably feasible. Yet, every single one of these levers will require intensive efforts – both on the private side (preparation and implementation of investments, workforce adjustment, negotiation of new supply networks, among others) and on the public administration side (regulatory changes, grant schemes, and coordination, to name but a few).

Some of the levers require complex reforms on their own – in agriculture, power markets, waste management etc. These need to be implemented relatively quickly, since by 2030, all levers should be up and running. Multiplied by thirty, it will require extreme efforts, especially on the public administration side, which is a partner in every single one of the thirty levers. In reality, public administration is riddled with staff shortfalls, slow processes, political instability and internal conflicts, limited knowledge of the very broad spectrum of issues, and with many other obstacles which may limit the ability to implement the levers in time.

CETERIS PARIBUS IN CONSUMPTION

The 2019 World Bank analysis estimated consumption pattern shifts between industries[19]. The 2022 ministerial analysis does not reflect this – it focuses only

[19] http://documents.worldbank.org/curated/en/772561553850127627/pdf/A-Low-Carbon-Growth-Study-for-Slovakia-Implementing-the-EU-2030-Climate-and-Energy-Policy-Framework.pdf

> SLOVAKIA HAS A LOW CARBON ELECTRICITY MIX, WITH AROUND 70-80% OF ELECTRICITY GENERATED BY NUCLEAR POWER, HYDRO, AND RENEWABLES

on the potential sources of GHG reduction, not the potential sources of new GHG emissions. Patterns of consumption gradually change, and it may be possible that by 2030, some sources of GHG emissions will become more important (new power consumers like A/C in households, increased travelling etc.). Mechanisms outside the scope of the study will probably reduce the rise of new emission sources (ETS, carbon tax, energy standards, and other), but it may cause different arrangement of priorities and costs in the levers list.

NET COST CALCULATION

The strategy balances negative and positive costs to receive the final cost of the levers' implementation (EUR 2.7–13.5 billion). However, reduction of a cost on one side does not automatically create capital on the other side. The authors of the strategy call it 'societal net cost'. However, mechanisms will have to be created to transfer the savings to finance the new investment.

The most notable example is the closure of the Novaky mine. It is supposed to save around EUR 120 million annually. However, its closure is already a done deal, and the savings will go towards utility bills of consumers (who directly pay these subsidies). These resources will have to be extracted from the population in some way, and only then can they be spent on levers with positive cost. Constructing these mechanisms will not be an easy feat.

POWER AVAILABILITY

The previous six problems mentioned in relation with the plan to cut emissions in Slovakia were just a warm-up before the final, most important problem – electric power generation and distribution.

First, we need to note that this is less of a problem when focused on the technical side and Slovakia solely. Slovakia has a low carbon electricity mix, with around 70-80% of electricity generated by nuclear power, hydro, and renewables. With two more nuclear reactors hopefully nearing commissioning after numerous delays (bringing the total up to six), the low carbon power generation ability will be further strengthened.

Looking from the European perspective, the problem is substantially bigger – electrification of the steel and chemical industry in Europe will bring massive requirements for new clean power generation. For example, just the complete electrification of the German chemical industry will require more than 600 terawatt-hours (TWh) of green electricity per year, more than Germany's entire current electricity

> WHILE THE SHEER AMOUNT OF ELECTRICITY MAY NOT BE A BIG PROBLEM IN SLOVAKIA, THE PROBLEM IS ITS PRICE

consumption of around 500 TWh, according to its Roadmap 2050[20].

While the sheer amount of electricity may not be a big problem in Slovakia, the problem is its price. With interconnected power networks and commodity exchanges, massive uptake in electricity demand will spread higher prices across Europe. That this is not just a theory can be witnessed right now, in the summer of 2022, when the electricity prices are skyrocketing to the EUR 700 /MWh level (way above the long-term price around EUR 50/MWh) due to the war in Ukraine. The main problem is created by the peak electricity demand, satisfied mainly by thermal power plants. With two major Slovak thermal power plants destined to be closed (and numerous others facing the same fate around Europe), the problem will grow deeper.

[20] VCI (2019) *Roadmap Chemie 2050*. Available [online]: https://www.vci.de/services/publikationen/broschueren-faltblaetter/vci-dechema-futurecamp-studie-roadmap-2050-treibhausgasneutralitaet-chemieindustrie-deutschland-langfassung.jsp [in German]

The ministerial analysis does not reflect a need for new power generation, storage, and power transmission. With the key levers relying on electricity prices (especially the electric arc furnaces, but also electric vehicles, heat pumps, and railway utilization), the economic feasibility of the plan lays in question.

CASE STUDY: US STEEL

When it comes to US Steel and its possible routes towards lower carbon intensity, this steelmaker (employing 9,000 people and with revenues around EUR 3.5 billion) is the largest employer in the eastern part of the country. It is also by far the biggest CO2 emitter in Slovakia – with around 9 MtCO2 emissions per year. It produces steel in three blast furnaces, using coke as the reducing agent.

There are two major steps for the company to make. One is a combination of electric arc furnaces (EAF) and direct cast and roll technology (DCR). The second major step is the use of hydrogen as a reducing agent in production instead of coke.

According to the company representatives interviewed by authors, installation of the two EAFs will enable the company to produce around 70-75% of the current portfolio of products, the rest of the portfolio products will be produced by the remaining third blast furnace. The installation of EAFs will require additional power supply and scrap metal supply, since EAF input is around 80% of scrap metal, instead of the current 20%. Installation of EAFs should reduce around 4.6 MtCO2 of annual emissions.

Power requisite can be technically met (although we do not know the power needs of hydrogen production yet), due to expected commissioning of a new reactor in the Mochovce nuclear power

plant and ongoing negotiations with the Slovak transmission operator[21]. It is important to note that, currently, the company is able to produce some power using waste heat from blast furnaces. Therefore, the need for an external power source is higher than the EAF requirement alone.

The need for scrap metal will be met by expanding the network of suppliers. Currently, the European Union is exporting about 20 million tons of scrap metal per year and obtaining additional supplies of scrap metal should not represent a substantial obstacle. EAFs are interconnected with the DCR technology, which has the potential to reduce further 1.5 MtCO2 per year[22]. Projected cost of the two EAFs and the DCR unit is around EUR 1.3 billion[23], with expected substantial support from the state. However, according to the interviewed representatives of US Steel, the investment will rise competitiveness of the company thanks to a wider range of products, which is currently limited by the too narrow old casting and rolling unit.

The combination of EAFs and the DCR has the potential to reduce around 68% of existing emissions – given the electricity is supplied from a low carbon (most probably nuclear) source. This will leave around 3 MtCO2 of emissions in the company. To further cut these emissions, the remaining blast furnace would have to be converted as well. To keep the ability to produce primary steel (and not just recycle scrap metal), the coke reduction process would have to be replaced by hydrogen via direct reduction process[24]. While the technology is sixty years old (albeit using natural gas, not hydrogen), there is only one DRI plant in Europe, owned by ArcelorMittal and located in Hamburg, producing meagre 0.6 Mt of steel per year[25]. However, another 10-14 plants are planned to be in the state of market production by the end of the decade in Europe (not all utilizing hydrogen).

> THERE IS ONLY ONE DRI PLANT IN EUROPE, OWNED BY ARCELORMITTAL AND LOCATED IN HAMBURG, PRODUCING MEAGRE 0.6 MT OF STEEL PER YEAR

The main culprit in this case is not the technology itself, but the electricity needed to produce green hydrogen. The electricity need for electrolysis is around 3.3 TWh per

[21] Based on own interviews with company managers.

[22] https://www.eurofer.eu/press-releases/stop-waste-and-scrap-export-to-countries-not-meeting-eu-environmental-and-social-standards-asks-eurofer/

[23] https://spectator.sme.sk/c/22851363/kosice-steel-works-to-invest-more-than-1-billion-into-modernisation.html

[24] https://bellona.org/news/industrial-pollution/2021-05-hydrogen-in-steel-production-what-is-happening-in-europe-part-two

[25] Ibid.

> THE MORE WE AIM BEYOND THE 55% LIMIT AND TOWARDS CARBON NEUTRALITY, THE MORE DEPENDENT WE BECOME ON THESE LEVERS ON THE AVAILABLE GREEN ELECTRICITY, COMBINED WITH INSUFFICIENT TECHNOLOGY READINESS

Mt of iron[26]. Therefore, 1 Mt of *green* iron requires steady power supply equivalent of a 400 MW nuclear reactor. Theoretically, the power may be available in Slovakia thanks to the second reactor coming online in 2024, and with the potential closure of the aluminum smelter, which consumes around 3 TWh of power annually and already interrupted production due to high electricity prices in the summer of 2022. Still, besides additional capital expenditures on the electrolyzer and other technology, such a move greatly increases dependence on electricity markets.

CONCLUSIONS

To reach GHG reduction targets, Slovakia needs to implement dozens of actions. However, the main bulk of reductions will happen in metallurgy, chemical, cement, and transport industries. While transport industry is decentralized, the majority of GHG emissions generated in the three remaining industries are centered on a single-digit number of companies. The most important is a single steelmaker, emitting over one fifth of total carbon in Slovakia.

Reaching the level of 55% is technically possible, coming with a large, but not unimaginable price tag. The main obstacles are in implementation – managerial unpreparedness, political instability, or supply capacity. The more we aim beyond the 55% limit and towards carbon neutrality, the more dependent we become on these levers on the available green electricity, combined with insufficient technology readiness (in some cases).

Slovakia is part of the European power market, and the abundance of national low-carbon power sources does not provide any advantage when it comes to the question of economic availability of power in Europe. There will be demand for any additional megawatt hour from industries all over Europe, increasing the costs of decarbonization in Slovakia. The European Union as a whole still lacks the required abundance of low carbon or zero-emissions sources of electric power in Europe.

[26] Ibid.

[27] Residential and commercial sector.

Therefore, the emission reduction plan is an example of the *chicken or egg* question: will green (read 'electrified') industry rise first, or does it not make sense before the energy transition takes place in Europe?

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Table 3: Complete list of decarbonization levers in Slovakia

No.	Sector	Lever name	Y-axis – abatement cost (EUR/tCO2e)	X-axis – abatement (ktCO2e)
1	Other industry	Closing Nováky mine	-605	203
2	Transport	Cars' electrification	-312	248
3	Transport	Cars electrifcation (ambitious scenario)	-200	83
4	Res. & com.[27]	Heat pumps and fuel switch	-142	111
5	Heat	Bratislava HP[28] improvements	-118	27
6	Cement	Cement alternative fuels	-85	154
7	Res. & com.	Thermostats and smart meters	-84	119
8	Transport	Cars fuel efficiency	-83	176

[28] Heating plants.

No.	Sector	Lever name	Y-axis – abatement cost (EUR/tCO2e)	X-axis – abatement (ktCO2e)
9	Heat	Košice HP burning waste	-78	23
10	Iron and steel	Plasma Furnace	-48	10
11	Res. & com.	Insulating buildings without CHS[1]	-39	167
12	Petroleum refining	Flaring reduction	-32	73
13	Transport	Increase freight diesel efficiency	-19	160
14	Cement	Waste heat reuse	-13	71
15	Petroleum refining	Power and heat from biomass	-13	755
16	Other industry	Reduce methane leaks	-11	82
17	Heat	Košice Geothermal energy	-6	71
18	Heat	Improvements in Košice HP	-6	52
19	Agriculture	Livestock reduction	0	126
20	Transport	Lower speed limit	0	52
21	Power	Decommissioning Nováky	1	1 662
22	Power	Decommissioning Vojany	1	524
23	Iron and steel	Lower fuel consumption	3	194
24	Iron and steel	Optimized transport routes	4	285
25	Cement	Cement materials substitution	5	162
26	Waste	Biogas from landfill	5	116
27	Heat	Small HPs improvements and fuel switch	13	49
28	Chemicals	Cooling device for absorption column	13	37
29	Iron and steel	Electric blower	14	147
30	Chemicals	Tertiary catalytic reduction	21	33
31	Petroleum refining	Energy efficiency	22	158
32	Heat	Insulating buildings with CHS	26	150
33	Agriculture	Food additives for animals	30	59
34	Iron and steel	Electric arc furnace 1	33	2 309

[29] Central heating system.

No.	Sector	Lever name	Y-axis – abatement cost (EUR/tCO2e)	X-axis – abatement (ktCO2e)
35	Iron and steel	Electric arc furnace 2	33	2 309
36	Iron and steel	Expansion turbine	39	18
37	Agriculture	Improved fertilization practices	40	189
38	Iron and steel	Lower steam and hot water consumption	41	51
39	Transport	Mode shift for passengers	48	646
40	Iron and steel	Hatch annealing	49	39
41	Heat	Žilina HP fuel switch	59	95
42	Iron and steel	Direct Cast and Roll	82	1 464
43	Agriculture	Improved manure management	84	60
44	Petroleum refining	CCS petrochemicals	84	477
45	Chemicals	CCS ammonia production	87	876
46	LULUCF	Afforestation	93	147
47	Transport	Shifting freight from road to rail	111	374
48	Transport	Freight alternative fuels	112	140
49	Other industry	CCS aluminum	126	271
50	Cement	CCS lime	133	332
51	Cement	CCS cement	133	1 559
52	Iron and steel	CCS steel	139	1 092
53	Iron and steel	CCS ferroalloys	139	159
54	Petroleum refining	CCS refining	148	366
55	Heat	CCS large HPs	156	372
56	Power	CCS Malzenice	156	442
57	Petroleum refining	H2 production	177	39
58	Transport	Aviation shift to alternative fuel	274	9
	TOTAL			**20 174**

Source: Decarbonization of the Slovak Economy by 2030

Fossil-Fueled Politics: The Multidimensional Energy Dependency of Orbán's Hungary

* MÁRTON SCHLANGER

Green development is a topic covered extensively in literature as it has been of utmost importance in the past decades[1]. The European Union (EU) has mostly agreed that sustainability is a key value of the EU and that the effects of climate change require cooperation on an international scale[2]. Carbon emissions must be reduced, and non-renewable energy sources (such as fossil fuels) must be gradually replaced by more sustainable alternatives.

The EU Green Deal was a bold policy proposal that set the stage for an EU-wide joint effort to become carbon-neutral, while allowing some leeway for countries with high carbon-dependency. However, Russia's invasion of Ukraine, and the economic turmoil that followed, threw a wrench in the works on the reform package, and some of what was imagined about green development in the EU must be unlearned.

Several countries – including Hungary – depend heavily on Russian energy, and it could take quite a while to diversify and reimagine their energy mix, even though time is a very limited resource, should the conflict with Russia escalate to complete isolation. In this paper, let us explore the case of Hungary, as it shall provide much needed insight into how current events may force a country to return to the drawing board.

Hungarian energy dependency has several distinct dimensions. Hungary is heavily reliant on fossil fuels, as they make up almost

> HUNGARY IS HEAVILY RELIANT ON FOSSIL FUELS, AS THEY MAKE UP ALMOST 70% OF THE COUNTRY'S ENERGY CONSUMPTION

70% of the country's energy consumption[3]. The rest of the consumption is split between nuclear and renewable sources. Hungary is not just reliant on fossil fuels, but primarily on imported fossil fuels. The country's general import dependency is 54%, with oil import dependency being close to 90% and gas import dependency at 67%[4]. Specifically, the imported energy comes in large part from Russia, with gas imports being less diversified than oil imports. This vulnerability was already formulated during the Soviet era[5], but this does not explain why the country is still so dependent on Russian imports.

[1] Gan, L., Eskeland G., and H. Kolhus (2007) "Green Electricity Market Development: Lessons from Europe and the US", [in]: *Energy Policy,* Vol. 35(1), January, p. 145.

[2] European Commission (2019) *The European Green Deal*, p. 1.

[3] Hungarian Energy and Public Utility Regulatory Authority (2021) *Annual Report*, p. 3.

[4] Ibid., p. 2.

[5] Szegő, I. M. (2022) "Orosz energiafüggőség: mit tehet Magyarország, az EU egyik legkiszolgáltatottabb állama?", [in]: *24.hu.* Available [online]: https://24.hu/fn/gazdasag/2022/04/18/orosz-energiafuggoseg-foldgaz-koolaj-magyarorszag-legkiszolgaltatottabb-allam/ [in Hungarian]

IT WOULD CLEARLY BE IN THE INTEREST OF HUNGARIAN SOCIETY TO REIMAGINE HUNGARIAN ENERGY POLICY AND SAY GOODBYE TO THE BAND-AID PHILOSOPHY OF THE OVERHEAD REDUCTION LAW IN FAVOR OF LONG-TERM SOLUTIONS

Beyond these forms of dependency, the Fidesz government, under the leadership of Prime Minister Viktor Orbán, also depends politically on energy policy – so much so that they have built two general election campaigns on energy policy in the last decade, both netting them a 2/3 supermajority in Hungarian parliament. Their "overhead reduction" policy – which is essentially a price cap for residential energy consumption – has been the flagship of Fidesz's and Viktor Orbán's political agenda since 2012, and a major contribution to their election victories. This strategy comes with a high price, literally: the overhead reduction can cost a lot of money to the government, and these costs have skyrocketed since Russia's invasion of Ukraine, to the point where the Hungarian government had to find extra funds to maintain the overhead reduction policy.

In the face of Russia's invasion of Ukraine, and the ongoing green development debate in the European Union, one can discover a conflict of interest within Hungarian energy policy. On the one hand, it would clearly be in the interest of Hungarian society to reimagine Hungarian energy policy and say goodbye to the band-aid philosophy of the overhead reduction law in favor of long-term solutions. On the other hand, the interest of the governing party is to hold on to their golden goose–overhead reduction–and to maintain their good relationship with Russia, and, therefore, to keep up an energy structure that, in turn, keeps them in power. There was no apparent escape from this stalemate until this year, when Russia's aggression forced the hand of the Hungarian government to try and adapt to the new circumstances. How did this affect Hungary's energy policy and our uneasy relationship with the idea of green development? That's what I explore in this article.

To demonstrate the significance of the current events, during the writing of this article, PM Orbán's government had to change their overhead reduction policy, limiting the number of beneficiaries, and essentially break their very recent campaign promise to keep the policy intact. This gives analysts the perfect chance to compare the policy as it was a month ago and as it is in its current form, and through the case of Hungary, explore the opportunities and challenges of implementing the Green Deal policy in the face of a global crisis.

IN THE LOVING EMBRACE OF PIPELINES

In hindsight, it may seem strange that not so long ago there were times when Hungary could extract enough oil and gas domestically to cover the country's consumption. Then again, oil reserves were running low[6], and both oil and gas consumption were much lower in the 1960s, only to increase drastically by 1970 and onward. Whether it would have been possible to avoid dependency on Soviet import or not will never be known, as Hungary, being part of the Soviet bloc, had no issues with dependence on the 'motherland' for energy. In fact, János Kádár (the head of Hungary's communist-socialist government between 1956-1988) initiated talks with the Soviets regarding oil imports in the late 1950s[7].

As a result, starting from 1962, the 'Friendship I' pipeline imported crude oil to Hungary, where it would be refined and used[8]. Hungarian industry (mainly the chemical industry) saw exponential growth in the 1960s and 1970s, which created a demand for more energy that was going to be imported from the Soviet Union[9]. In 1972, the 'Friendship II' pipeline was built for oil imports, and in 1975, the 'Brotherhood' gas pipeline followed, which marked the start of Hungary's dependency on Soviet gas[10]. All the above was followed by Hungary's first (and to this day only) nuclear power plant in 1987, which also relies on Russian nuclear fuel. This is the basis for the Hungarian Russian energy dependency that is still felt to this day.

> THE PRICE CAP SET BY THE OVERHEAD REDUCTION POLICY (ORP) WAS ADJUSTED BASED ON MARKET PRICES EVERY FEW MONTHS, DECREASING ALONG GLOBAL PRICE TRENDS

All of this transpired in Hungary's communist era, which ended with the regime change in 1989. While all of the aforementioned investments tied Hungary to Russia, it does not automatically mean that there were no chances to be set free or to diversify in the past decades. Fossil fuel consumption steadily decreased with the dismantling of the Soviet-era Hungarian industry[11], which was one of the main causes of Russian dependency. In fact, during the leftist-liberal governments in the 2000s (and even in Orbán's first term that followed between 2010-2014), renewable energy sources have gained ground

[6] Feitl, I. (2016) *Talányos játszmák – Magyarország a KGST erőterében 1949-1974*, Budapest: Napvilág, p. 22. [in Hungarian]

[7] Ibid.

[8] Ibid.

[9] Pető, I. and S. Szakács (1985) *A hazai gazdaság négy évtizedének története*, Budapest: Közgazdasági és Jogi Könyvkiadó, p. 10. [in Hungarian]

[10] Pető, I. and S. Szakács (1985) *A hazai gazdaság négy évtizedének története*, Budapest: Közgazdasági és Jogi Könyvkiadó, p. 8. [in Hungarian]

[11] EUROSTAT (2022) Energy Statistics – Energy Data 1990-2020.

in Hungary, and natural gas consumption also decreased.

What is more, gross inland energy consumption was steadily decreasing between 2007 and 2014[12]. Only from 2014 (or, more precisely, since the election campaign prior to the 2014 spring election, which marked Orbán's Russian turn), the agreement with Russia on a second nuclear plant, and the initiation of the Fidesz government's famous overhead reduction policy, led to wasteful household energy consumption. Only then did Hungary's natural gas and overall energy consumption increase again[13]. Between 2014 and 2018, primary energy consumption in Hungary increased by 12%, residential energy consumption by 6% and industrial energy consumption by 20% – the latter in no small part because overhead reduction also applied to small and medium-sized businesses. This development was paired with a steadily decreasing inland natural gas production, which continues to dwindle to this day. At the same time, renewable energy production, which increased vastly in the 2000s, has been stagnating since 2014. Now let us examine the overhead reduction policy in its original form.

THE BEGINNING OF FOSSIL-FUELED POLITICS

The idea for the overhead reduction policy came about during Viktor Orbán's 2010-2014 term in office. The effects of the 2008-2009 economic crisis were still felt by Hungarian households, especially in energy prices[14]. Because of this, the topic of overhead prices was no stranger to mainstream politics. With the upcoming elections in mind, the governing party clearly needed a measure the effect of which would be felt immediately by voters. So, out of a political rationale, they decided to set official energy prices.

> AS HUNGARY DOES NOT LEAD BY EXAMPLE IN TERMS OF TRANSPARENCY, THE PRICE AT WHICH THE GOVERNMENT ACQUIRES GAS IS CLASSIFIED

At the time of implementation, this was a price cap set at about 90% of the market price of electricity and gas, based on November 2013 energy prices[15]. In practice, this meant that households paid up to 25% less in overheads than before[16]. This was partly made possible because energy prices decreased globally starting from

[12] Ibid.

[13] Ibid.

[14] Csaba Weiner; Tekla Szép (2020): Mire mentünk a rezsicsökkentéssel? KRTK Available [Online]. https://www.portfolio.hu/krtk/20201013/mire-mentunk-a-rezsicsokkentessel-451630 [in Hungarian]

[15] Act LIV of 2013 on the Implementation of the Reduction of Overheads (2013) Hungary

[16] Csaba W. and T. Szép (2020) *Mire mentünk a rezsicsökkentéssel? KRTK*. Available [online]: https://www.portfolio.hu/krtk/20201013/mire-mentunk-a-rezsicsokkentessel-451630 [in Hungarian]

> THE OVERHEAD REDUCTION POLICY WAS A PRODUCT OF RELATIVE GLOBAL ECONOMIC PROSPERITY AND AS SUCH COULD NOT HAVE BEEN MAINTAINED IN TIMES OF HARDSHIP

2014[17]. The price cap set by the overhead reduction policy (ORP) was adjusted based on market prices every few months, decreasing along global price trends.

Eventually, because of decreasing world energy prices, by 2016, Hungarian energy prices actually ended up being higher than world energy prices[18]. This, however, was not the only issue with the ORP.

First of all, the costs of this policy are unpredictable in the long term. One must factor in the price at which the Hungarian government purchases gas from Russia. As Hungary does not lead by example in terms of transparency, the price at which the government acquires gas is classified.

[17] MEKSZ (2018) energy data

[18] Ibid.

It is known, however, that, at times, the government makes a profit on gas trade. For example, in 2018, while Hungary boasted the lowest gas consumer prices in the EU, the government still made HUF 3.5 billion (or EUR 9 million in today's rates) on selling gas to Hungarians. The opposite can be said about 2022. Because of the energy crisis, the overhead reduction policy in its original form would have cost the government at least EUR 3.26 billion over the course of one year[19]. The overhead reduction policy was a product of relative global economic prosperity and as such could not have been maintained in times of hardship.

Moreover, pretty much every household and a large portion of small businesses paid overhead based on the same rates[20]. There was no proportionality to speak of, so, naturally, the higher one's consumption, the more they saved on overhead. For someone who can barely afford EUR 30 per month to cover overhead costs, a 5-euro discount helps very little. Not to mention that the most deprived households in Hungary often use wood or coal for heating, which was not included in the ORP. On the other hand, wealthier consumers, who might live in large houses with jacuzzies and saunas, were potentially saving over EUR 100 every month on overhead reduction alone.

The lack of proportionality ties into the third and perhaps the biggest problem with the original overhead reduction policy: it *de facto* encourages wasteful energy consumption. It mimics the psychology of a summer sale (the more you spend, the more you save), and every month, when the gas bill comes in the mail, it says in

[19] Government of Hungary (2022) *Government Info*. Available [online]: https://youtu.be/GRPV0w9Bwbc [in Hungarian]

[20] Act LIV of 2013 on the Implementation of the Reduction of Overheads (2013) Hungary

> WEALTHIER CONSUMERS, WHO MIGHT LIVE IN LARGE HOUSES WITH JACUZZIES AND SAUNAS, WERE POTENTIALLY SAVING OVER EUR 100 EVERY MONTH ON OVERHEAD REDUCTION ALONE

bold letters how many forints you saved this month thanks to the ORP (this was part of the original regulation and is still part of its new iteration). This way, voters are constantly reminded of the generosity of their government. Knowing this, it is easy to understand how 2014 turned the trend of steadily decreasing energy consumption on its head, resulting in increasing consumption once more[21].

The overhead reduction policy helped Viktor Orbán's government to stay in power and win three more elections, all with 2/3 supermajorities in the parliament. While cheap energy was not nearly the sole reason for these victories, it was certainly an important contributor, as the ORP was part of all three election campaigns since then. For almost 10 years, the government had no reason to change this policy, as it was steadily netting them votes. For some years, they even profited on it due to cheap Russian gas[22].

As long as there were not any disturbances in the energy supply from Russia, the Hungarian government could keep this wasteful policy afloat. In fact, there was no direct communication that implied that the Fidesz government would accommodate green development goals by changing the ORP.

For example, who could have wholeheartedly believed a year ago that Orbán would not try to veto energy taxation as described in the 'Fit for 55' plan? The revision of the Energy Taxation Directive (ETD) requires unanimity in the European Council, and, in all likelihood, Orbán would veto this unless, somehow, Hungary gets a pass, or–best-case scenario–accepts the new ETD with minor changes and spends more on the ORP without burdening households, and the waste continues. In 2022, however, a set of different circumstances forced PM Orbán's hand.

A SERIES OF UNFORTUNATE EVENTS

In July 2022, Viktor Orbán's government revamped their golden goose, the overhead reduction policy, after almost 10 years of it being in effect. This contradicted their very recent campaign promise to 'defend' overhead reduction[23]. While there was

[21] EUROSTAT energy statistics – energy data 1990-2020 (updated April 2022)

[22] Regional Energy Economics Research Centre (2020) *Gas Market Analysis for the Hungarian Hydrocarbon Stockpiling Association.*

[23] Viktor Orbán: "We implemented overhead reduction and we will protect it!" (January 20, 2022) Available [online]: https://www.facebook.com/photo.php?fbid=477833123714291&set=a.347694613394810&type=3
Also: "We will protect overhead reduction, we will protect Hungarian families!" (May 26, 2022) Available [online]: https://www.facebook.com/photo.php?fbid=559382782225991&set=a.347694613394810&type=3

news even before the general elections on April 3, 2022, which implied that the Fidesz government is bleeding money through overhead payments[24], nobody could have known for sure if the policy would be revised. What could have led to this situation?

To say that Russia's invasion of Ukraine put PM Orbán's government in a tough spot would be correct, but there were a few other factors that led to the revision of the government's trump-card policy. Even before February 2022, or the further escalation of the invasion, the Hungarian economy was in a vulnerable state. The country's economy was still suffering from a sort of 'post-COVID-19 illness', inflation was alarming even before the war broke out, the EU funds were frozen due to PM Orbán not accepting the rule of law criteria, and the general elections were coming up.

Viktor Orbán and his party, Fidesz, employed their usual tactic of severely overspending and 'buying votes' prior to the elections, which included tax exemption for all Hungarians under 25, and an extra payment equal to a full month of pensions to all pensioners[25]. Due to overspending, the government reached over 80% of the annual budget deficit target by April–the month of the election[26].

On top of all of this, the invasion of Ukraine brought even more inflation, a food supply crisis, and an energy crisis. As the maintenance cost of the overhead reduction

> THE OVERHEAD REDUCTION POLICY HELPED VIKTOR ORBÁN'S GOVERNMENT TO STAY IN POWER AND WIN THREE MORE ELECTIONS, ALL WITH 2/3 SUPERMAJORITIES IN THE PARLIAMENT

policy grew significantly every month, PM Orbán and his government had to pull the plug. They had foreshadowed the urgent need to change this policy as early as March 2022[27], but waited until after the elections to announce that the overhead reduction policy was unsustainable in its then form.

At first, they were looking for extra funding, which led to the 'extra profit tax', which was implemented as an attempt to pay for the ORP. This tax was imposed on eight industries (including telecommunication and airlines), carefully avoiding any industry in which Fidesz-friendly entrepreneurs had interests (such as construction and

[24] Government of Hungary (2022) *Government Info*. Available [online]: https://youtu.be/GRPV0w9Bwbc [in Hungarian]

[25] Government Decree 684/2021 (XII. 7.) on the full restoration of the thirteenth month pension and the thirteenth month benefit in 2022. Available [online]: https://net.jogtar.hu/jogszabaly?docid=A2100684.KOR [In Hungarian].

[26] Hungarian Ministry of Finance (2022) *Monthly Report April 2022*.

[27] Járdi, R.(2022) "Overhead Reduction Will Be Even More Expensive", [in]: világgazdaság.hu. Available [Online]: https://www.vg.hu/vilaggazdasag-magyar-gazdasag/2022/03/meg-dragabb-lesz-a-rezsicsokkentes [in Hungarian]

casinos)[28]. Eventually, however, the ORP needed to be tightened. So, what changed?

OVERHEAD REDUCTION-REDUCTION

On July 21, 2022, the Hungarian government announced the new overhead regulation. As they have been ruling by decree since the beginning of the COVID-19 pandemic (with short breaks), there were no votes in the parliament (not that it would matter with Fidesz's 2/3 majority). The changes to the ORP would come into effect on August 1, 2022, less than two weeks after the full announcement.

Essentially, households are only entitled to discounted electricity and gas until they reach the level of average consumption associated with either energy carrier[29]. Once consumption surpasses the national average for either gas or electricity, the rates increase for that energy carrier. Thus, the consumer pays a reduced price for energy equal to the average consumption and a higher price for any additional energy usage.

It is important to note that this 'average' level is set specifically in the text of the regulation and will not change unless the government increases or decreases it; therefore, if this revision of the ORP results in lower household energy consumption, it will not lower the amount of discounted energy available for citizens. The average level is set at 210 kWh/month for electricity, and at 144 m3/month for gas. Above the limit, electricity prices increase by about 100% and gas prices increase by around 700%. It is also important to mention that the number of businesses entitled to overhead reduction also decreased drastically – now only 'micro-businesses' employing 10 or fewer employees are entitled to discounted energy under the set average consumption levels.

> TO SAY THAT RUSSIA'S INVASION OF UKRAINE PUT PM ORBÁN'S GOVERNMENT IN A TOUGH SPOT WOULD BE CORRECT, BUT THERE WERE A FEW OTHER FACTORS THAT LED TO THE REVISION OF THE GOVERNMENT'S TRUMP-CARD POLICY

This change came suddenly, and given that for many this means a significant increase in monthly expenses (not to mention that it goes against Orbán's recent promise), naturally, the reception of this new policy was mixed, to say the least[30]. Of course, pro-government media outlets were quick

[28] Government Decree 197/2022 (4.VI.) on extra-profit taxes (June 04, 2022).

[29] 259/2022.(VII. 21.) Government Decree on the determination of certain universal service tariffs (July 21, 2022).

[30] Pénzcentrum (2022) *New Details on the Cuts: It Will Be Cruel, Here's How the Government Will Calculate*. Available [online]: https://www.penzcentrum.hu/othon/20220715/uj-reszletek-a-rezsicsokkentes-megvagasarol-ez-kegyetlen-lesz-igy-fog-szamolni-a-kormany-1127001 [in Hungarian].

to spin the story and defend the revised policy, and anti-government media were just as ready to call out Orbán's government for breaking its promise.

Interestingly enough, this measure was not met with immense resistance in the form of protests, which could either be because the unsustainability of the current ORP was known and opposition voters anticipated a revision, or because there were already protests happening as a consequence of another measure – the revision of the KATA employment status[31]. Either way, it was acknowledged that the overhead reduction policy changed. What voters think is one thing, but policy evaluation is another. What is there to praise or to critique? Since the main concern regarding the former ORP was its unsustainability, the question becomes: Is the new ORP more sustainable than its predecessor?

To start off, a few words regarding implementation, as Viktor Orbán's government is used to an unchallenged, lightning-speed legislative process[32]. It is not the first time that high-impact policies and legislation have been implemented within days of an announcement. One of the recent examples of this phenomenon is the modification of the gasoline price cap regulation that came into effect the same day as it was announced[33].

> AS THE MAINTENANCE COST OF THE OVERHEAD REDUCTION POLICY GREW SIGNIFICANTLY EVERY MONTH, PM ORBÁN AND HIS GOVERNMENT HAD TO PULL THE PLUG

Still, changing the overhead law (with what was basically a one-week notice) put a massive strain on smaller businesses and households and made adaptation to the increasing expenses borderline impossible. One possible explanation would be that the government was quickly running out of money and another month of unmodified ORP would have rocked the national treasury.

Either way, the abruptness of Fidesz's governance is nothing new. As always, Hungarians are left to catch up by their own efforts, if it is even possible for them to do so. This is the legislative context in which the new policy was implemented. What is even more important though, are the contents of the regulation and how it compares to its predecessor.

The original policy was unproportional, since it benefited high-consumption households while it did very little for more deprived households. One could argue

[31] KATA is an abbreviation for the Hungarian 'Itemized tax for Small Taxable Enterprises'.

[32] Policy Solutions (2015) *Az Orbán-kormány ötödik évének mérlege – A harmadik Orbán-kormány jogalkotása számokban*, Budapest: Policy Solutions. [in Hungarian]

[33] Government of Hungary (2022*) Government Info*. Available [online]: https://youtu.be/x0EZ9VNomQE [in Hungarian]

that the new policy solves only half of this problem. The more a household surpasses average consumption, the less its members save on utilities. While previously, high-consumption households could save 25% (or more, since gas prices skyrocketed) on overhead costs, now they will save a significantly smaller percentage of the full cost, depending on how much they surpass the set levels, while those with low consumption may still get fully discounted energy. Therefore, those struggling to pay even the discounted prices, especially during winter months, as well as those living in homes with outdated energy solutions (or using wood or coal for heating), still do not receive the support they need. As such, basic security is still not ensured.

> HOUSEHOLDS ARE ONLY ENTITLED TO DISCOUNTED ELECTRICITY AND GAS UNTIL THEY REACH THE LEVEL OF AVERAGE CONSUMPTION ASSOCIATED WITH EITHER ENERGY CARRIER

Wastefulness is closely related to the matter of proportionality, because with a proportional measure overconsumption is discouraged and, in this regard, the reimagined ORP is a significant advancement compared to its predecessor. The thought of a sevenfold increase in overhead costs is sure to incentivize a more mindful energy consumption. While threatening the existence of citizens by defunding the ORP should not be considered a good incentive or even good policymaking, it is a certainly effective way to quickly reduce consumption. It will be easier to comment on the effectiveness of this measure once the July energy consumption data is available. In the long run, a more energy-efficient society will make it easier for Hungary and the government to participate in green development and to accommodate sustainability measures more easily.

The third piece of critique is related to the cost of these policies. Gas prices dictate the true cost of the ORP, and it is nearly impossible to estimate while planning the annual budget – even with whatever classified deal exists between Hungary and Russia. Earlier this year, the Hungarian government admitted that the ORP became almost unsustainably costly in 2022 and projected that keeping it up until the end of the year would cost the government about EUR 3.26 billion[34]. Clearly, even after the revision, the ORP must cost a significant amount of money, but how much is it? Now, this is rather tricky to estimate due to the lack of transparency in the energy sector, but let us attempt it anyway.

The Hungarian government forecasted that the ORP would have costed them HUF

[34] Government of Hungary (2022) *Government Info*. Available[online]: https://youtu.be/GRPV0w9Bwbc [in Hungarian]

> PRO-GOVERNMENT MEDIA OUTLETS WERE QUICK TO SPIN THE STORY AND DEFEND THE REVISED POLICY, AND ANTI-GOVERNMENT MEDIA WERE JUST AS READY TO CALL OUT ORBÁN'S GOVERNMENT FOR BREAKING ITS PROMISE

1,300 billion (EUR 3.26 billion) in 2022[35]. This amount is made up of the margin between the market price paid for energy by the state and the reduced price paid by consumers – mostly for gas, since electricity can be fully covered by the Paks nuclear plant in Hungary[36]. This was the official estimate, though Viktor Orbán admitted in his speech at the Tusványos festival this summer, after the measure was already in effect, that the ORP could even have costed them as much as HUF 2,05 billion (approximately EUR 5.15 billion) in 2022, as opposed to just HUF 296 billion (EUR 743,000) in 2021[37].

Previously, overhead reduction was fully available to all Hungarian households, of which approximately 4.1 million are based on the data of the Central Statistical Office[38]. This means that the ORP would have costed EUR 795 per household (EUR 3.26 billion/4.1 million households) to the Hungarian government in 2022 alone. Now, with the modified overhead reduction policy, every household is entitled to cheap electricity and gas until 210 kWh/month and 144 m3/month consumption respectively. The discounted price for electricity is EUR 0.09/kWh, and the market price is EUR 0.18/kWh; for gas, the discounted price is EUR 0.25/m3, while the market price is EUR 1.87/m3 [39].

To reiterate, the government must pay the margin between the market price and the reduced price for every kWh of electricity and every m3 of gas used for every household up to 210 kWh electricity and 144m3 gas consumed every month. This margin is EUR 0.085/kWh for electricity and EUR 1.61/m3 for gas.

So, if all households consume energy exactly equal to or higher than the level set in the new ORP, it will cost the government approximately EUR 250/household/month (or EUR 3,000 EUR/household/year to pay

[35] Ibid.

[36] Weinhard, A. (2022) "Paks Would Cover Consumption", [in]: *RTL News*, July 14. Available [online]: https://embed.rtl.hu/embed/1923768 [in Hungarian]

[37] Viktor Orbán's Tusványos speech (July 23, 2022). Available [online]: https://youtu.be/qwDgIYXR2v4 [in Hungarian]

[38] Hungarian Central Statistical Office (KSH)(2020): 2.2.1.1 Number of households and persons by income deciles

[39] 259/2022.(VII. 21.) Government Decree on the determination of certain universal service tariffs.

> THE ABRUPTNESS OF FIDESZ'S GOVERNANCE IS NOTHING NEW

for the margin). Multiply that by the number of households (over 4 million households) and you get the maximum amount that this policy could cost the government if all households reached the set level of consumption and the government paid market price for gas and electricity: approximately EUR 12.3 billion.

Of course, not all households reach a consumption of 210kWh electricity and 144m3 gas in a month. Based on the data of the Central Statistical Office, around 2 million households exceed the monthly electricity consumption of 210kWh, and around 1.1 million exceed a monthly gas consumption of 144m3 [40]. Still, these households alone will cost the government over EUR 3.5 billion over one year (EUR 3.1 billion for gas and EUR 430.7 million for electricity) at the market price set by the new ORP – and this number is completely excluding around 1 million households whose overhead is lower than average, but the overhead reduction fully applies to their consumption.

This may sound like a lot, but there is a catch: The Hungarian government does not pay the market price for these energy carriers – they actually pay significantly less than homeowners who exceed the limit set in the new ORP. The market price of energy carriers is set by the government based on the government's costs associated with acquiring, producing, and distributing energy carriers. And it is the price the households pay for it, but not what the government is paying for it. While the details of the Hungarian-Russian gas deal are classified, we know that 1m3 of gas costs approximately HUF 400-450 (EUR 1-1.1) for the government, as opposed to the set market price of HUF 747 (EUR 1.87) meaning that the 'market price' paid by homeowners is almost twice as high[41].

It is also known that the Paks nuclear plant can produce all the electricity Hungarian households could need, and the net production cost of 1 kWh of electricity costs about HUF 11-12 (EUR 0.028), which translates into 1/7th of the market price set in the new ORP[42]. So, finally, a more realistic estimate would be that the new ORP will cost the government between EUR 2.5-3 billion over one year. If that is the case, the government saves half a billion euros on the new ORP compared to their official 3.26 billion estimate with the original ORP (or around EUR 2.5 billion compared to the more realistic estimate given by Viktor Orbán in his Tusványos speech). As it is already difficult to give a rough estimate of the costs associated with this policy, one can only imagine how challenging it is to estimate these costs when planning the annual budget of a country, while Hungary's main importer is waging a war on the international community.

[40] Habitat for Humanity Hungary, KSH Household Budget and Living Conditions Survey 2020 data

[41] KSH; Népszava (2022): Putin favours Orbán only in words: in February, the Russians even asked us for 30 percent more than the market price for "cheap" gas. 2022.05.04.

[42] Weinhard, A. (2022) "Paks Would Cover Consumption", [in]: *RTL News*, July 15. Available [online]: https://embed.rtl.hu/embed/1923768 [in Hungarian]

Therefore, let us assume that the Hungarian government saves between EUR 0.5-2.5 billion on the changed ORP compared to the original policy. Still, in contrast to last year, when the ORP 'only' cost EUR 743,000, this year's expenses will be at least EUR 1.5-2 billion higher – even after the revision of the ORP. And let us not forget that the remaining millions or billions will be paid by consumers, and they will pay a higher price than the government would for the same energy. Most households will need to tighten their belts to pay for more expensive energy and other goods.

All in all, there are three main problems with the overhead reduction policy in Hungary, and, after examining the new, revised version of the policy, it becomes clear that two of three problems were dealt with to some extent, while one was not addressed. The new ORP will likely be less wasteful, and energy will cost more when it is to be used for heating water in a jacuzzi than it will be for those trying to maintain livable temperatures in their homes, which improves proportionality.

In terms of costs associated with this policy, they are just as unpredictable as they were previously. As such, maintaining the modified policy will still likely cost the government billions of euros more than it did last year.

HUNGARIAN GREEN DEVELOPMENT IN THE FACE OF A GLOBAL CRISIS

Before 2022, Hungary's relationship with green development felt like forced marriage. Neither the government nor the citizens took sustainability to heart, and Hungary remained as it was, in the loving embrace of Russian pipelines, and showed no sign of getting tired of the Russian dependency illness it had developed over the past sixty years. Looking at the goals of the EU Green Deal, and imagining the

> THE MORE A HOUSEHOLD SURPASSES AVERAGE CONSUMPTION, THE LESS ITS MEMBERS SAVE ON UTILITIES

Hungarian government accommodate these goals, cynicism was the first instinctive reaction. The CO2 emission of Hungary is not as alarming as one might expect from what has been described above, which might be partly a result of the fact that the Hungarian industry was dismantled over the past thirty years, reducing emission[43]. The bigger problem is (Russian) non-renewable energy dependency and not utilizing renewable energy systems.

The ideas of diversification or energy-efficiency all went against the Orbán-government's fossil-fueled politics, which was built on Russian gas and the overhead reduction. The Orbán government's governance, including its European policy, has been determined by the principle of vote maximization. Both the government and the Hungarian society reinforced each other in regarding green development as

[43] https://www.worldometers.info/co2-emissions/hungary-co2-emissions/

> IN THE LONG RUN, A MORE ENERGY-EFFICIENT SOCIETY WILL MAKE IT EASIER FOR HUNGARY AND THE GOVERNMENT TO PARTICIPATE IN GREEN DEVELOPMENT AND TO ACCOMMODATE SUSTAINABILITY MEASURES MORE EASILY

unimportant. As a result, almost every time Hungarians have been[44].

In 2022, however, after a series of unfortunate events (especially due to Russia's invasion of Ukraine and the energy crisis), Viktor Orbán and his government were forced to return to the drawing board and reimagine the energy policy, which was at the core of their governance strategy. Could the crisis have been the nudge needed to set Hungary on the rocky path of green development and sustainability? Certainly, the energy situation forced PM Orbán to contradict recent promises and change the overhead reduction policy. Not only that, but the prime minister finally acknowledged the need for diversification of Hungary's energy mix.

What is more, he made room for the principle of energy diversification in his ten-point agenda, where it was accompanied by such noble principles as family-based society, nationalistic ambitions, or border defense[45]. The fact that diversification could stand in as a black sheep with the pillars of the Fidesz government's identity-politics shows how much of a turning point we have arrived to.

The changed overhead reduction policy is highly likely to reduce energy consumption, and high gas prices could turn people towards electricity, which can be produced in more sustainable ways. This also applies when planning household energy solutions or travel, resulting in modernizing energy use or reduction in car use – at least with petrol cars, since most of Hungarian oil also comes from Russia. Just like Hungarian households, companies are also forced to innovate or go bankrupt, and, unfortunately, the latter is a more likely outcome.

The energy crisis puts all governments of the European Union under pressure from different sides – some more than others, depending on the level of dependency. In the case of Hungary, there is pressure from the EU in an effort to try and escalate green development, brought about by Russia's invasion. There is also pressure from Russia, whose pipelines now hold Hungary in a suffocating grasp. For the

[44] Republikon Institute (2017) *Health, Social Security, and Immigration*, Budapest: Republikon Institute, p.3.

[45] Infostart (2022): Viktor Orbán sets out 10 points on how Hungary could be an exception in a global recession. 2022.07.27.

> THE CHANGED OVERHEAD REDUCTION POLICY IS HIGHLY LIKELY TO REDUCE ENERGY CONSUMPTION, AND HIGH GAS PRICES COULD TURN PEOPLE TOWARDS ELECTRICITY, WHICH CAN BE PRODUCED IN MORE SUSTAINABLE WAYS

first time, Hungary is forced on the path of sustainable energy, not even by the European Union, but by its own economic and energy situation. This will take a long time and plenty of resources, but the EU could help with this process significantly (in both the short and long term) – for example, by providing Hungary with nuclear fuel for the Paks nuclear plant, which could reduce dependency on Russia for electricity.

There is also a third kind of pressure, from voters, who were just denied their overhead reduction, and whose hardships could easily backfire on Orbán's government. This third kind of pressure feels the least significant as the government has caused much hardship for many people over the years and yet it was never enough to break the faith of Fidesz voters[46]. PM Orbán's government is still backed by a media empire and strong instruments of power, including the power to change or implement any law including changing the constitution. Also, the next general elections are in four years, and much can change by then.

Will any of this pressure jumpstart green development in an otherwise unwilling country? Will this make it easier for the European Union to cooperate with Hungary and for Hungary to cooperate with the EU? Will this pressure help free Hungarians from decades of Russian dependency? Seeing how quickly fundamental changes are brought about, it is safe to say that Hungary is at a crossroads, and whichever way the country is headed, after almost ten years of dominance, fossil-fueled politics, the politics of abundancy, has met its worthy competitor: the politics of scarcity.

[46] Election results – General elections in Hungary 2022. Available [online]: https://vtr.valasztas.hu/ogy2022/orszagos-listak?tab=parties [in Hungarian]

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The Green Development Needs Significant Developments in Reducing Bureaucracy: A Case Study of Lithuania

* KAROLINA MICKUTĖ

To combat the detrimental effects of climate change and environmental degradation, the European Union (EU) has committed to transforming itself into a modern, resource-efficient, and competitive economy[1]. Among many of its initiatives and instruments lies the NextGenerationEU Recovery Plan (NGEU) aimed at providing financial support to EU member states and their residents in green development. The main portion of responsibility lies at the member state level, as states were required to come up with their own plans for implementing the recovery plan. For example, Lithuania's plan is focused on ensuring energy independence and expanding the green energy infrastructure typically via subsidies or compensations for alternative energy[2].

According to the 2021 data of Electricity Transmission System Operator (ETSO), AB LITGRIT, which is in charge of the infrastructure of electricity transmission of the state, Lithuania meets only about 32% of its electricity demand with local generation. 78% of Lithuania's electricity comes from renewable energy sources (RES), but this is less than a fifth of the total electricity consumption. In 2021, RES accounted for less than 20% of Lithuania's total electricity demand. However, by 2022, this share has increased and now accounts for just over a fifth (~21%). Meanwhile, the NGEU's target for 2030 is that 90% of all electricity consumption will be generated in Lithuania – mostly from RES. In the years 2014-2021, the overall energy consumption rose by 3 TWh, whereas the share of RES almost doubled. However, the portion of imported electricity also rose – from 7.6 to 9 TWh, whereas during the aforementioned period the amount of non-RES electricity slightly dropped (by 0.191 TWh) [See: Figure 1]. Since 2012, RES has become the core source of Lithuania's produced energy instead of thermal and hydro plants [See: Figure 2].

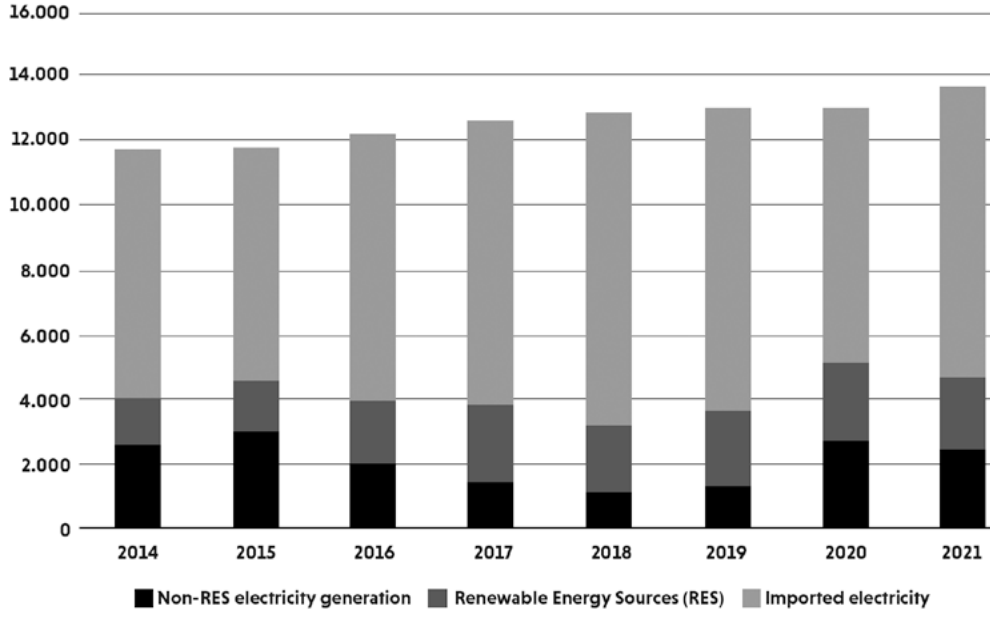
Due to ongoing crises and tensions (particularly the war in Ukraine), dependency on imported energy has posed major risks to the European Union and national markets as the prices of energy soar. Relying

LITHUANIA'S PLAN IS FOCUSED ON ENSURING ENERGY INDEPENDENCE AND EXPANDING THE GREEN ENERGY INFRASTRUCTURE TYPICALLY VIA SUBSIDIES OR COMPENSATIONS FOR ALTERNATIVE ENERGY

[1] https://ec.europa.eu/info/publications/factsheets-european-green-deal_en

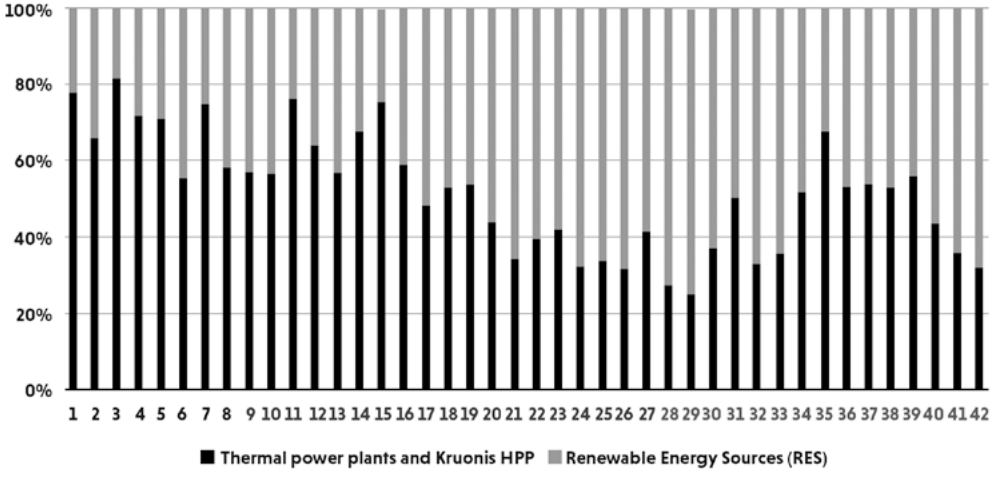
[2] The Ministry of Finance of the Republic of Lithuania (2021) *Ekonomikos gaivinimo ir atsparumo didinimo planas "Naujos kartos Lietuva"*. Available [online]: https://finmin.lrv.lt/uploads/finmin/documents/files/Naujos%20kartos%20Lietuva%20planas.pdf [in Lithuanian]

Figure 1: Total electricity demand in Lithuania, GWh



Source: Author's own calculations based on the ETSO data

Figure 2: Source of electricity generated in Lithuania



Source: Author's own calculations based on the ETSO data

> DUE TO ONGOING CRISES AND TENSIONS (PARTICULARLY THE WAR IN UKRAINE), DEPENDENCY ON IMPORTED ENERGY HAS POSED MAJOR RISKS TO THE EUROPEAN UNION AND NATIONAL MARKETS AS THE PRICES OF ENERGY SOAR

on imported electricity could be mitigated by new fossil power plants, which is relatively improbable since the overall goal of the EU and its member states is to depend on this source of energy as little as possible. Another option would be nuclear power; however, just recently, one of the core power plants in Lithuania has been closed down[3] and there are no talks at the political or societal level about reopening the nuclear plant. Relying more on RES is the most probable option, as fostering innovation and investments in these sources of energy would not only allow the EU to be more independent from market fluctuations, but it could also reduce overall energy prices in the long run.

The core instrument of the EU and Lithuania's NGEU to achieve the latter scenario is to provide financial support to those who wish to invest in the RES infrastructure. However, it would be inefficient to focus solely on financial injections as the key means of achieving the EU's environmental goals. At the core of the EU strategy lies the intention to create new opportunities for innovation and investment and jobs, and to strengthen the competitiveness of European companies[4]. This requires creating an "environmentally-friendly" regulatory framework that would not hinder or harm the possibilities and willingness of private actors to engage in green development but instead enable them. In order to do so, it is necessary to address core issues that hinder progress. Among these are state-level bureaucratic chains, inefficient decisionmaking and stakeholder involvement, as well as a profit tax regime that does not directly reward investments.

THE WEB OF BUREAUCRACY TRAPS TIME, INVESTMENTS AND AMBITION

As noted by EU MP Dacian Cioloș, "*the Green Deal should not bring new red tape*[5]" to say the least. However, due implementation of the EU's goals to foster innovation and investments requires the member states to review mechanisms that currently

[3] https://www.iae.lt/veikla/eksploatavimo-nutraukimas/67 [in Lithuanian]

[4] See, e.g., http://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en

[5] https://www.europarl.europa.eu/news/en/press-room/20191203IPR68087/green-deal-for-europe-first-reactions-from-meps

discourage private actors from engaging more actively.

Wind energy business representatives, who wish to develop in Lithuania, note that their possibilities to invest in the country are severely slowed down by bureaucracy[6]. Only some of the companies that applied for state support in spring of 2022 have acquired a part of the promised subsidies for investing into wind or solar power. In addition, those subsidies are fully paid only after the project has been implemented[7]. According to the Lithuanian Small and Medium Business Council, the latter circumstance may deter some companies from using renewable energy resources as they would opt for payments in advance instead of compensations, thus discouraging maximal green development in the country[8]. However, it must be kept in mind that the financial resources for subsidies are limited. In the long run, the pre-financing of such projects may prove to be inefficient if investors do not follow through. This, in turn, could reduce the circle of possible investors if all of the funds were paid out in a single lump sum, and if the company defaulted and went bankrupt.

Vidmantas Janulevičius, the President of the Lithuanian Confederation of Industrialists and the Chairman of the Board of Global BOD Group, a manufacturer of solar modules, argues that industrial companies could invest without state support, but the situation is complicated by bureaucratic hurdles

> BUREAUCRACY POSES AT LEAST TWOFOLD RISKS TO ACHIEVING THE EU'S GREEN DEVELOPMENT GOALS

created by central and local governments – particularly those of acquiring the necessary permits to build wind turbines and solar modules[9]. This not only increases legal uncertainty, but also costs valuable time that could be invested more efficiently. Agreeing with this, Minister of the Environment Simonas Gentvilas noted that such and similar bureaucratic constraints must be eased[10]. However, given the general procedural requirements of law-making, the said decisions can still take at least a few months to be finalized and have not yet been done by the end of the summer of 2022.

Superfluous bureaucracy together with rigid and slow implementation on the part of the public sector have become common grounds for critiquing Lithuania's ambitions regarding green development. Stakeholders note that Lithuania's Next Generation plan was supposed to be one for fast-paced

[6] Gaidamavičius, G. (2022) *Verslui įsirengti nuosavas jėgaines trukdo per menkas finansavimas ir biurokratija*, BNS. Available [online]: https://www.lrt.lt/naujienos/verslas/4/1618500/verslui-isirengti-nuosavas-jegaines-trukdo-per-menkas-finansavimas-ir-biurokratija [in Lithuanian]

[7] BNS (2022) *Verslui įsirengti nuosavas jėgaines trukdo per menkas finansavimas ir biurokratija*, BNS. Available [online]: https://www.bns.lt/topic/1912/news/65726831/print/true/ [in Lithuanian]

[8] Ibid.

[9] Gaidamavičius, G. (2022) *Verslui įsirengti nuosavas jėgaines trukdo per menkas finansavimas ir biurokratija*, BNS. Available [online]: https://www.lrt.lt/naujienos/verslas/4/1618500/verslui-isirengti-nuosavas-jegaines-trukdo-per-menkas-finansavimas-ir-biurokratija [in Lithuanian]

[10] Ibid.

projects that had to pour money quickly into the economy[11]. Thus, not only efficient instruments, but also speed and a timely implementation of the plan's measures are crucial – which became even more relevant given Russia's ongoing war in Ukraine and its shrinking effects on private investments. However, no significant speedy decisions have been made to date[12].

Therefore, bureaucracy poses at least two-fold risks to achieving the EU's green development goals. Firstly, it reduces the motivation and ambitions of private actors to invest in green development and innovation thus reducing the effectiveness of Europe's instruments. Secondly, it traps time, which is a crucial resource both to the private and public sector and, instead, could be more efficiently invested. Given that the success of Europe's green development plans relies not only on efficient, but also on timely decisions, a crucial component of the transition is ensuring a regulatory framework that would not unjustly waste time when speedy decisions are necessary.

ASKING *HOW TO DO IT* INSTEAD OF TELLING *WHAT TO DO*

Even though the European Union had provided guidelines on the national plans for green development, it was primarily up to the states to determine the concrete measures it plans on taking. In this sense, the efficiency of the plan depends not only on the declared measures, but also on their implementation possibilities. And the latter cannot be determined solely by politicians applying a topdown approach but also should include the efficient involvement of the stakeholders that the measures aim to aid.

> LITHUANIA'S INITIATIVES REGARDING GREEN DEVELOPMENT ARE HEAVILY CRITICIZED DUE TO THE LACK OF INVOLVEMENT OF SOCIETY IN THE DECISION-MAKING PROCESS

However, Lithuania's initiatives regarding green development are heavily criticized due to the lack of involvement of society in the decision-making process. The National Network of NGOs has joined more than a hundred Lithuanian non-governmental organizations in addressing the Prime Minister of Lithuania regarding unfulfilled promises to involve civil society in processes critical to Lithuania regarding the green development plan.[13] Many NGO representatives publicly criticize the government for not including the community enough and

[11] Simėnas, D. (2022) *Ekonominės transformacijos planą užgožė karo ir infliacijos šešėlis*, VŽ. Available [online]: https://www.vz.lt/finansai-apskaita/2022/04/21/ekonomines-transformacijos-plana-uzgoze-karo-ir-infliacijos-seselis [in Lithuanian]

[12] Ibid.

[13] Švietimo NVO tinklas (2021) *NVO kreipiasi į Ingridą Šimonytę dėl nepakankamo bendradarbiavimo su pilietine visuomene*, svietimotinklas.lt. Available [online]: https://svietimotinklas.lt/nvo-kreipiasi-i-ingrida-simonyte-del-nepakankamo-bendradarbiavimo-su-pilietine-visuomene/ [in Lithuanian]

> THE PRIVATE SECTOR IS THUS FOCUSED ON SERVICE DELIVERY, WHEREAS THE PUBLIC SECTOR'S PERFORMANCE CAN BETTER BE DESCRIBED AS FORMAL COMPLIANCE WITH THE RULES, WHERE CUSTOMER SATISFACTION IS NOT AN INDICATOR

disregarding many of their opinions and arguments[14]. In June 2021, Business Europe and the Lithuanian Confederation of Industrialists surveyed their members on the Lithuanian plan; these members underlined the minimal involvement of social partners in designing it[15]. Many social partners noted that the plan's public discussions were a mere formality and that it is destined to be inefficient since many of the stakeholders' arguments and concerns were not addressed[16]. However, the lack of society's involvement is a complex issue, which needs a variety of measures in order to improve its quality. The responsibility for duly involving the society should be shared among the EU, the member states, and the representatives of the society themselves.

To some extent, one could look into the EU's actions, as the European Union has required states to agree upon an enormous amount of rules and obligations whilst leaving a disproportionate amount of time to prepare the final draft of the NGEU. Furthermore, public consultations pose a burden on the financial resources of the state and thus the taxpayers themselves, so the duration and scope of the negotiations have to be proportionate. Lastly, the quality of the society's involvement relies on the stakeholders themselves, i.e., they should address whether they are looking to negotiate and compromise on issues with opposing interests.

The Lithuanian Business Confederation indicated that Lithuania's NextGenerationEU Plan vaguely describes the reforms relevant to business and society without specifying the concrete implementation measures on which the success of the reforms

[14] See, e.g., Simėnas, D. (2022) *Ekonominės transformacijos planą užgožė karo ir infliacijos šešėlis*, VŽ. Available [online]: https://www.vz.lt/finansai-apskaita/2022/04/21/ekonomines-transformacijos-plana-uzgoze-karo-ir-infliacijos-seselis [in Lithuanian]; Šavelė, G. (2021) *Trys (ne)tiesos, lydėjusios „Naujos kartos Lietuva" plano pristatymą*, LRT. Available [online]: https://www.lrt.lt/naujienos/verslo-pozicija/692/1394015/gaja-savele-trys-ne-tiesos-lydejusios-naujos-kartos-lietuva-plano-pristatyma [in Lithuanian]

[15] https://www.businesseurope.eu/publications/reform-barometer-2021-country-results-lithuania

[16] Švietimo NVO tinklas (2021) *NVO kreipiasi į Ingridą Šimonytę dėl nepakankamo bendradarbiavimo su pilietine visuomene*, svietimotinklas.lt. Available [online]: https://svietimotinklas.lt/nvo-kreipiasi-i-ingrida-simonyte-del-nepakankamo-bendradarbiavimo-su-pilietine-visuomene/ [in Lithuanian]

> A FASTER-THAN-NORMAL DECISION MAY RESULT IN THE CIVIL SERVANT BEING QUESTIONED BY THE SPECIAL INVESTIGATION SERVICE OR EVEN INVESTIGATED FOR POSSIBLE CORRUPTION IN LITHUANIA

themselves depends[17]. The Lithuanian Confederation of Industrialists noted that there is no system, no clarity, and no overall picture of the plan's implementation[18]. Its representative also emphasized that it is difficult to say how much will be spent on the green transformation of companies, and at what stage, and that it is unclear to what extent and which measures will be subsidized[19]. This poses another threat to achieving the EU's environmental goals, as many of the national plans may lack efficiency if they were not duly negotiated with stakeholders, who in fact will have to make use of the plan's measures.

The fundamental principles of law-making primarily imply the requirement to hold actual public consultations and to consider such suggestions in order for the regulations to achieve their objectives efficiently[20]. The Law on the Legislative Framework also provides the principle of expediency, meaning that a draft legal act must be drawn up, and a legal act must be adopted only where the objectives pursued cannot be achieved by other means[21]. Without identifying the core issues and alternatives to solving them, not only are the quality requirements not met, but also the measures themselves may prove to be inefficient.

A CLIENT-ORIENTED PUBLIC SECTOR TO BETTER ACHIEVE ENVIRONMENTAL GOALS

The plans to implement green development as well as to increase innovation and investments depend not only on the efficiency of the proposed instruments, but also on their timely and adequate implementation. This includes the reaction of the companies who wish to invest in renewable energy together with the actions of the institutions and their employees.

[17] Simėnas, D. and J. Budreikienė (2021) *Ragina nesudėti RRF plano lėšų į televizorius klasėse kaip į trinkeles kaimuose*, VŽ. Available [online]: https://www.vz.lt/finansai-apskaita/2021/05/14/ragina-nesudeti-rrf-plano-lesu-i-televizorius-klasese-kaip-i-trinkeles-kaimuose&da3319ae490f58 [in Lithuanian]

[18] Simėnas, D. (2022) *Ekonominės transformacijos planą užgožė karo ir infliacijos šešėlis*, VŽ. Available [online]: https://www.vz.lt/finansai-apskaita/2022/04/21/ekonomines-transformacijos-plana-uzgoze-karo-ir-infliacijos-seselis [in Lithuanian]

[19] Ibid.

[20] Republic of Lithuania Law on Legislative Framework, No. XI-2220. Available [online]: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/722be922696011ecb2fe9975f8a9e52e?jfwid=13l025st5v [in Lithuanian]

[21] Ibid.

> LITHUANIAN MPS HAVE MADE ADVANCES OFFERING CERTAIN 'TAX RELIEFS' TO PROFITS REINVESTED INTO GREEN DEVELOPMENT

The state has a monopoly on the provision of certain services, in this particular case – granting permits to construct solar panels or wind turbines, because the performance of these functions is its prerogative. In this context, for the public sector, customer welfare is not a key performance indicator, as the customer cannot express their will, for example, by choosing another service provider. The private sector is thus focused on service delivery, whereas the public sector's performance can better be described as formal compliance with the rules, where customer satisfaction is not an indicator. In the context of public administration, a client is not only a direct recipient of a public service: the notion of a client encompasses a wide range of entities in relation to which a civil servant acts.

This becomes more evident when talking about permit issuance procedures regarding construction. As mentioned before by the private stakeholders, obtaining permits is hazy in terms of rules and requirements; however, it is also a prolonged and thus costly procedure. This may be caused by several national requirements that discourage efficient and timely decision-making by institutions.

If a civil servant issues a permit sooner than the statutory deadline, it significantly eases the burden on the private entity (providing more clarity and time to engage in economic activity), as well as on the civil servant themselves, thus allowing them to optimize their own resources and to continue to work effectively. However, a faster-than-normal decision may result in the civil servant being questioned by the Special Investigation Service or even investigated for possible corruption in Lithuania, given the cross-referencing of information among institutions. This demonstrates not only a lack of trust in the private sector, but also in civil servants themselves. The most effective approach would be to promote responsibility and ownership among civil servants in a comprehensive way, and not penalize them for getting things done more quickly.

The motivation to spend resources efficiently is also distorted by the fact that there is typically no limit to the number of times a civil servant can return requests for permits, queries, or other documents for revision[22]. Both the abundance of formal rules and the lack of real accountability undermine the autonomy and incentives of the civil servant to act efficiently. It is understandable that the human factor may lead to the sincere omission of certain aspects of documents, but the unlimited number of corrections does not encourage officials to optimize their performance.

[22] See, e.g. Republic of Lithuania Law on Public Administration. Available [online]: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/6996d4c0d86111e8820ea019e5d9ad04?jfwid=13l025snzr

It would, therefore, make sense to limit the number of times a given request can be returned for rectification, as this would allow for a more efficient implementation of many state goals, including those regarding green development where progress needs to be done fast.

This stems from the general legal interpretation of what constitutes 'damages'. Under the Lithuanian Civil Code damages are a financial category and are linked with unlawful actions[23]. Noncompliance with the principles of good administration (i.e., timely and efficient decision-making) is out of the scope of the source for damages to occur. Liability, therefore, arises only in cases of misconduct and in the occurrence of concrete material damage to the person, which must be dealt with by the courts[24]. Such enforcement of liability through the courts is costly for both the private persons and the state and is, as a result, only applicable in exceptional cases of serious damage. It cannot be considered an adequate and proportionate mechanism to enforce the liability of civil servants.

The damage caused by the state as a service provider could be linked to the expectations of the citizen-customer arising from the legislation governing the civil service. Often, delays in making decisions and responding to citizens' queries, the minutiae of checking the documentation of queries, and the transfer of documents from one department to another do not directly damage the person's assets, but they do cause damage in terms of wasted time and financial resources that could be channeled into value creation and business development. However, the actual responsibility for missing deadlines in public authorities' decision-making and responses to citizens often does not materialize. It, therefore, makes sense to expand the legislation on the concept of damages and the forms of redress, including the redress mechanism provided for in the Civil Code.

> ONE OF THE CORE STRATEGIES OF THE EUROPEAN UNION TO ENCOURAGE GREEN DEVELOPMENT IS CREATING NEW OPPORTUNITIES FOR INNOVATION, INVESTMENT, AND JOBS, AND STRENGTHENING THE COMPETITIVENESS OF EUROPEAN COMPANIES

The transfer of unnecessary functions to the private sector and NGOs would also help optimize the public sector to better implement green development plans.

[23] Civil Code of the Republic of Lithuania, Art. 6.249. Available [online]: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.404614?jfwid=13l025spwi

[24] Ibid.

> LITHUANIA'S EXAMPLE SHOWS THAT STAKEHOLDERS WOULD BE WILLING TO INVEST IN RENEWABLE ENERGY EVEN WITHOUT THE STATE'S FINANCIAL SUPPORT

The government of Lithuania proposed a concept of reforming the public sector, which includes freeing the state from those functions that can be more effectively performed by the private sector and NGOs[25]. Such a path would allow the state to spend its limited resources in a meaningful way in pursuit of its mission.

It is important to note that such a transfer of functions must not be based on the objective of achieving ideal service delivery, which is not possible regardless of the resources available. Trust in the private sector for the transfer of functions is based on the expectation that, as the owner of private property, it will make every effort to deliver services adequately and to take care of the resources and continuity of its operations, which will help the state to save time and financial resources that are now essential for the performance of essential state functions.

A CORPORATE INCOME TAX TO PROFIT THE ENVIRONMENT

Lithuanian MPs have also made advances offering certain 'tax reliefs' to profits reinvested into green development. However, instead, it would be prudent to systematically revise the current corporate income tax regime to incentivize investing in green development.

LFMI's study suggests that the currently applied CIT also plays a significant role in promoting investments in renewable energy in Lithuania[26]. Profits earned here are taxed twice – at the company level and by dividends[27]. In 2021, the effective corporate tax rate was as high as 27.75%. Since the abolition of the zero rates on reinvested earnings in 2002, a chronic development of corporate tax incentives has been observed showing the need of a systemic review of the framework.

In addition, calculating and controlling income tax costs are regressive – the smaller the company, the higher the ratio of these costs to turnover. This, in turn, demotivates companies from investing into green energy due to the relatively higher costs.

[25] The Government of the Republic of Lithuania (2022) *Valstybės tarnybos reforma*: *koncepcija*. Available [online]: https://vrm.lrv.lt/uploads/vrm/documents/files/LT_versija/VTI_koncepcija_2022_02_28.pdf [in Lithuanian]

[26] Lithuanian Free Market Institute (2021) *Faktai ir analizė. Atsigauti po krizės padės investicijoms palankus pelno mokesčio modelis*. Available [online]: https://www.llri.lt/naujienos/faktai-ir-analize-atsigauti-po-krizes-pades-investicijoms-palankus-pelno-mokescio-modelis/lrinka [in Lithuanian]

[27] Ibid.

> THE EU'S AND ITS MEMBER STATES' GOALS FOR GREEN DEVELOPMENT COULD BE BETTER ACHIEVED BY PROMOTING A CLIENT-ORIENTED PUBLIC SECTOR AND ESTABLISHING DIRECT FINANCIAL RELIEF FOR INVESTMENTS

A group of members of the Parliament registered a draft law on providing a zero CIT on investments – particularly those regarding green development[28]. However, such an exemption would put additional administrative burden to prove the nature of the investment. Even if such an exemption would, indeed, make investing into the green transition more attractive, the instrument could not reach its maximal efficiency and potential, because proving the nature of the investment (particularly having in mind the prolific web of bureaucracy in Lithuania) could disincentivize some investors due to the costs.

Eliminating the taxation of reinvested earnings would increase companies' investment from their own funds. Under this model, only dividends paid out are taxed, while all funds used for investment and business development are tax-free. Tax-free investments free up funds for investment but also remove the need for tax accounting of profits. At the same time, it reduces all the associated burdens and tensions between taxpayers and administrators, as well as the incentives for shadow activities. Regardless of the short-term losses to the state budget in the long-term, such an 'investment' model would result in a more rapid economic expansion, more workplaces being created, and more innovation.

CONCLUSIONS

One of the core strategies of the European Union to encourage green development is creating new opportunities for innovation, investment, and jobs, and strengthening the competitiveness of European companies. This goal cannot be efficiently achieved by offering direct financial injections alone. Investments and innovations are driven and fostered by state support measures in a broad sense, including an enabling and investment-friendly regulatory environment. Creating an innovation and investment fostering and boosting regulatory framework relies on the quality of public services, which include permit issuance procedures and other services that the state has the prerogative to provide.

[28] The Parliament of the Republic of Lithuania, draft law on ammending Article 5 the Law on Corporate Income tax of the Republic of Lithuania No XIVP-1295. Available [online]: https://e-seimas.lrs.lt/portal/legalAct/lt/TAP/36d0f230785111ecb2fe9975f8a9e52e [in Lithuanian]

Lithuania's example shows that stakeholders would be willing to invest in renewable energy even without the state's financial support. However, investments are often halted by superfluous and hazy bureaucracy. This situation increases uncertainty and wastes valuable time resources that could instead be invested into economic growth directly.

The due implementation of the EU's and its member states' plans for green development relies, firstly, on establishing efficient instruments and measures. This cannot be achieved without consulting and duly including stakeholders, who will actually be the ones responsible for carrying out the green development. The case study of the Lithuanian NextGenerationEU Plan indicates that the stakeholders were not duly involved, which could result in decreasing the actual efficiency of the plan. Given that stakeholders will have to carry out the plan's measures, it is necessary to formulate them clearly and comprehensively. However, in the case of Lithuania, many of the stakeholders still have no clue on how the plan will be implemented and what responsibilities and possibilities lie ahead.

The EU's and its member states' goals for green development could be better achieved by promoting a client-oriented public sector and establishing direct financial relief for investments. By optimizing the public sector and reducing the incentives of institutions to drag out the procedures in cases of construction, private parties would have better means to efficiently invest in the green development and innovate. A zero rate CIT on reinvestments could also be considered as a state investment, because regardless of the short-term losses, the long-term benefits would not only help to better achieve environmental goals, but would also benefit the national and regional economy.

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Balancing Between a Green Future and Energy Security: The Difficult Path the Czech Republic Has to Consider in Light of Russian Aggression in Ukraine

* CHRISTOPHER STRONG

As if the COVID-19 pandemic has not been enough of a strain on the Czech Republic, the European Union (EU), and the world, the Russian escalation of its war in Ukraine has become one of the most significant events of our lifetime. Amongst the many actual and potential consequences of this war is the threat to the energy security of the Czech Republic and the EU. Years of reliance on Russian natural gas have put the EU at a strategic disadvantage.

The states dependent on hostile countries for energy are restricted with respect to what they can do to counter the state they are reliant on, as can now be seen in Europe[1]. While many European countries have long been aware of the dangers of relying on Russia for gas, they have done little to limit their reliance prior to the escalation of the Russian war in Ukraine. The Czech Republic and many other EU countries find themselves wavering between further harming the environment by maintaining or increasing reliance on coal or having to absorb increased energy prices that could cripple their economies and provide funding for their main geopolitical threat: Russia.

Countries such as Germany and Austria have decided to reinstitute coal as an energy source, to soften the blow of moving away from Russian energy[2]. Firing up these coal plants will decrease the likelihood of reaching their green goals in the coming years. Thus, an important question to consider is whether the Czech Republic should also follow this route to reduce its dependence on energy from Russia. Let us attempt to explain the risks involved with whichever path decision makers elect to go down.

> YEARS OF RELIANCE ON RUSSIAN NATURAL GAS HAVE PUT THE EU AT A STRATEGIC DISADVANTAGE

The Czech Republic, with its large coal reserves, gets approximately one-third of its energy from coal[3]. The country also gets a significant amount of energy from gas, oil, and nuclear, with renewables making up a small portion of the energy mix[4]. The Czech Republic plans to phase out coal by 2038 at the latest, but the Russian war in Ukraine might alter this deadline[5]. This goal is in line with European goals to reduce harmful emissions that further warm the planet.

[1] Spero, J.E. (1973) "Energy Self-Sufficiency and National Security", [in]: *Proceedings of the Academy of Political Science*, No. 31, pp. 123-125. See also: Ericson, R.E. (2009) "Eurasian Natural Gas Pipelines: The Political Economy of Network Interdependence", [in]: Eurasian Geography and Economics, Vol. 50(28).

[2] John, T. and I. Kappeler (2022) "Germany to Fire up Coal Stations as Russia Squeezes Gas Supply", [in]: *CNN*, June 19. Available [online]: https://edition.cnn.com/2022/06/19/energy/germany-russia-gas-supplies-winter-intl/index.html; Flemming, S. and D. Sheppard (2022) "EU Warns against Fossil Fuel 'Backsliding' as Coal Replaces Russian Gas", [in]: Financial Times, June 20. Available [online]: https://www.ft.com/content/a8b179e2-b565-42b6-bb41-90aea44536e1

[3] International Energy Agency (2021) "Czech Republic 2021 – Analysis", [in]: *IEA*. Available [online]: https://www.iea.org/reports/czech-republic-2021

[4] Ritchie, H. and M. Roser (2020]) "Czechia: Energy Country Profile", [in]: *Our World in Data*. Available [online]: https://ourworldindata.org/energy/country/czech-republic

[5] Ibid.

The country meets its additional energy needs with oil and gas, primarily from Germany, which at this stage in the war in Ukraine still gets at least one-third of its gas and 12% of its oil from Russia[6]. This level of dependence on oil and gas from Russia is a drastic reduction from the beginning of the war, but it is unlikely Germany will be able to reduce its reliance further in the near future. Russia has also been decreasing its supply to Europe, which could lead to a harsh economic impact on Germany, the Czech Republic, and many other member states[7]. The current energy situation tied to the geopolitical reality in Europe has put the Czech Republic and other EU nations in a precarious position.

CZECH RELIANCE ON GAS

Russian natural gas is crucial to the economic prosperity of the Czech Republic. It has recently been estimated that if Russia cut off gas flow to Europe, the Czech GDP could decrease by 6%[8]. The country is moving quickly to avoid this scenario. It has recently secured gas from a Dutch LNG Terminal starting in September 2022, which will reduce reliance on Russia by one-third[9]. Furthermore, the Czech authorities are working to fill reserves in the event Russia does cut off natural gas flows[10], which would impact the Czech Industrial sector as it makes up approximately 28% of the economy[11].

> IF RUSSIA CUT OFF GAS FLOW TO EUROPE, THE CZECH GDP COULD DECREASE BY 6%

In 2019, the Oxford Institute for Energy Studies published a comprehensive report on the challenges for natural gas demand in the Czech Republic. According to the report, the Czech industry makes up only around 45% of the country's total gas consumption[12]. Although this high consumption has resulted in significant investment in energy efficiency and energy-saving technologies among different industries in the country[13], the industrial economy requires significant energy inputs. In 2017, the industry and energy sector made up 44.2% of GDP, while the service sector contributed 46.8% and agriculture 2.2%[14]. In addition to the industry sector contributing to a significant percentage of the Czech GDP, it also employs over a quarter of the

[6] https://www.economist.com/the-economist-explains/2022/05/04/how-heavily-does-germany-rely-on-russian-energy

[7] Moulson, G. (2022) "Russia Again Cuts Natural Gas Exports thru European Pipeline", [in]: *AP News*, June 15. Available [online]: https://apnews.com/article/russia-ukraine-germany-canada-478f16db40c4881a8b4f64e0c0648b30

[8] Elliot, L. (2022) "Russian Gas Shutoff Would Send Some EU Countries into Recession, IMF Warns", [in]: *The Guardian*, July 19. Available [online]: https://www.theguardian.com/business/2022/jul/19/russia-gas-shut-off-eu-countries-europe-recession-imf

[9] https://ceenergynews.com/lng/czech-republic-to-source-3-bcm-of-lng-annually-through-dutch-terminal/

[10] https://www.bloomberg.com/news/articles/2022-07-19/czechs-tap-lng-as-europe-braces-for-winter-without-russian-gas

[11] European Union (2022) *Czechia*. Available [online]: https://european-union.europa.eu/principles-countries-history/country-profiles/czechia_en

[12] Princova, Z. (2019) "Challenges of Industrial Gas Demand in the Czech Republic, Poland and Slovakia", [in]: *Oxford Institute for Energy Studies*, May, p. 13.

[13] Ibid.

[14] Ibid., p. 14

> A CUT-OFF OF RUSSIAN GAS WOULD BE DETRIMENTAL TO THE INDUSTRIAL SECTOR AND THE OVERALL HEALTH OF THE CZECH ECONOMY

population[15]. Therefore, a cut-off of Russian gas would be detrimental to the industrial sector and the overall health of the Czech economy.

The Czech chemical and fertilizer industry is an example of an industry that is essential to the health of the Czech economy, as it makes up around 4.5% of the GDP and employs approximately 2.5% of the workforce[16]. *"The sector is largely dependent on coal (48%) and natural gas (40%) while oil, other gases[,] and waste account for the remaining 12%"*[17]. A sudden cut-off of Russian natural gas would severely impact this industry, as such a high percentage of its energy comes from gas. Not only does a large percentage of energy come from gas, but it is also used in the production of fertilizer and other chemicals[18]. Czech company Lovochemie has moved away from natural gas-based fertilizers in recent years, though, so this might soften the blow some if gas supplies are reduced[19].

Nevertheless, losing the jobs and output of this industry would make a significant dent in the Czech GDP. Thus, the chemical industry represents an industry that, in the short term, might feel that they would be better off relying more heavily on coal to make up for a potential lack of gas from Russia. The gas used to make certain chemicals and fertilizers would not be easily replaced, but the energy needed to run other operations could be supplemented by coal in the short term.

Another important sector is the Czech steel industry. It employs around 4% of the Czech workforce and accounts for almost 4% of the GDP[20]. Furthermore, this industry relies mainly on coal, with natural gas making up only 12% of its energy consumption[21]. Since the industry already relies so heavily on coal, it would be much easier for this sector to react to a potential cut-off of gas. This resiliency is crucial in the current geopolitical context. Unfortunately, though, the steel industry is one of the highest polluters of any industry and will continue to negatively impact the environment[22].

Furthermore, the Czech glass industry is another sector that would be severely impacted by Russia cutting off gas to Europe. While it does not make up a significant

[15] Ibid., p.18.

[16] Ibid., p. 20.

[17] Ibid.

[18] Ibid., pp. 22-23.

[19] Ibid.

[20] Ibid., p.25.

[21] Ibid., p. 26.

[22] https://www.theworldcounts.com/challenges/planet-earth/mining/environmental-impact-of-steel-production

> WHILE COMBATING THE EXISTENTIAL THREAT OF CLIMATE CHANGE IS A PRIORITY, THE CZECH REPUBLIC WILL BE UNABLE TO INVEST IN INNOVATION WITH A CRIPPLED ECONOMY

portion of the GDP, it does supply many other important industries in the country, particularly the automotive industry[23]. The ripple effect from disruption of the glass industry has the potential to be substantial, as the automotive industry makes up 9% of the Czech GDP and accounts for 24% of Czech exports. Natural gas is required to make high-quality glass, so any cut-off of gas would gut this industry and increase the car industry's manufacturing costs[24].

The industrial sectors mentioned above are crucial to the health and growth of the Czech Republic. A major and extended natural gas supply disruption could severely cripple these and other industries, downstream, which rely on their products to operate. Not only those but all industries would see their energy costs increase dramatically, which would have negative impacts on them and, ultimately, the consumer. While combating the existential threat of climate change is a priority, the Czech Republic will be unable to invest in innovation with a crippled economy. If Russia were to completely cut off gas from Europe, the Czech Republic might be forced to revert to coal to keep these critical industries afloat.

Needless to say, this article is in no way advocating for coal as a sustainable solution, just merely pointing out possible difficult decisions that might have to be made. In the longer-term, green and sustainable solutions should be the goal.

HISTORY OF RUSSIAN MANIPULATION

With tensions rising between the European Union and Russia, there is a real risk that Russia will cut off the natural gas supply to Europe, as it has already demonstrated its openness to reducing its flows[25]. In early September, during the writing of this article, Gazprom cut off the gas flow from Nord Stream 1, citing Western sanctions as the cause[26]. This seems like an obvious attempt to coerce the EU into lifting sanctions and could indicate more cut-offs in the near future. Of course, it is impossible to read Vladimir Putin's mind, but one can look at the past to better understand how Russia has used gas as a political tool and what is the likelihood of it doing it again.

[23] Princova, Z. (2019) "Challenges of Industrial Gas Demand in the Czech Republic, Poland and Slovakia", [in]: *Oxford Institute for Energy* Studies, May,p. 35

[24] Ibid.

[25] Miller, J. and G. Chazan (2022) "Russian Gas Cuts Threaten to Shutter Germany Industry", [in]: *Financial Times*, July 18. Available [online]: https://www.ft.com/content/07df3f2e-6991-4842-a047-41f2b6fb853d

[26] https://www.theguardian.com/world/2022/sep/05/russia-will-not-resume-gas-supplies-to-europe-until-sanctions-lifted-says-moscow

In 2021, Russia was the largest natural gas exporter in the world, with gas exports making up 2% of its GDP[27]. Russia exported 74% of its natural gas to the Organization for Economic Co-operation and Development (OECD) European countries[28]. Therefore, losing the major European market would be painful to a country already facing harsh sanctions.

In addition, it is crucial to mention the importance of Russia exporting oil to the world. Oil makes up a larger share of the Russian GDP (at around 10%)[29]. Therefore, the level of oil prices has a direct impact on the GDP of Russia[30]. *"Oil exports are the key to Russia's wealth, while gas exports and control over pipelines are important to Russia's influence abroad"*[31]. The sanctions resulting from Russia's most recent invasion of Ukraine could reduce the GDP of Russia by 10% in 2022 alone, with the long-term implications being even more devastating[32].

> PUTIN VIEWS DEFEAT IN UKRAINE AS AN EXISTENTIAL THREAT TO RUSSIA

This brutal hit to the Russian economy is already disastrous, even without the potential loss of revenues from energy exports to Europe. One could try to argue that Russia would make up for the loss of the European market by looking to the East, but they would be wrong. While Russia is making money from selling oil to China and India in the short term, it is more expensive to get it there, and Russia is steadily decreasing the amount of oil it can process[33]. Also, the G7 is working towards a price cap on Russian oil[34]. Additionally, the infrastructure to export large amounts of natural gas is not available and would take years to develop, even without crippling sanctions[35]. Russia might still be making profits now, but this model is not sustainable. Despite this, Putin views defeat in Ukraine as an existential threat to Russia and his regime[36]. Consequently, causing the devastation of European economies that are assisting

[27] U.S. Energy Information Administration (2022) *Europe Is a Key Destination for Russia's Energy Exports*. Available [online]: https://www.eia.gov/todayinenergy/detail.php?id=516182; Austrian National Bank (2022) The Russian Economy and World Energy Trade: Dependence of Russia Larger than Dependence on Russia. Available [online]: https://www.oenb.at/dam/jcr:c7d95c7b-c469-4834-ac94-98554c5e6f5f/2022-04-15-russian-economy-and-world-trade-in-energy.pdf

[28] http://www.russiamatters.org/blog/numbers-where-do-russias-energy-exports-go

[29] Austrian National Bank (2022) *The Russian Economy and World Energy Trade: Dependence of Russia Larger than Dependence on Russia*. Available [online]: https://www.oenb.at/dam/jcr:c7d95c7b-c469-4834-ac94-98554c5e6f5f/2022-04-15-russian-economy-and-world-trade-in-energy.pdf

[30] Rossbach, N. (2018) *The Geopolitics of Russian Energy. Gas, Oil, and the Energy Security of Tomorrow*, p. 38. Available [online]: https://www.foi.se/rest-api/report/FOI-R--4623--SE

[31] Ibid., p. 35.

[32] DiPippo, G. (2022) "Strangling the Bear? The Sanctions on Russia after Four Months", [in]: *www.CSIS.org*, June 22. Available [online]: https://www.csis.org/analysis/strangling-bear-sanctions-russia-after-four-months

[33] https://thediplomat.com/2022/06/asia-cant-save-russias-energy-sector/

[34] Race, M. (2022) "Ukraine War: G7 Agrees to Impose Price Cap on Russian Oil", [in]: *BBC News*. Available [online]: https://www.bbc.com/news/business-62770283

[35] https://thediplomat.com/2022/06/asia-cant-save-russias-energy-sector/

[36] Mearsheimer, J. (2022) "Playing with Fire in Ukraine" [in]: *Foreign Affairs*. Available [online]: https://www.foreignaffairs.com/ukraine/playing-fire-ukraine

> RUSSIA HAS A LONG HISTORY OF USING ITS CONTROL OF GAS AND OIL TO COERCE STATES AND ACHIEVE POLITICAL OBJECTIVES

Ukraine might seem like an inevitable measure Putin feels he has to take[37].

Many experts did not believe Russia would do something as drastic as a full-scale invasion of Ukraine[38]. Clearly, they were wrong. Cutting off gas revenues in the midst of a war, thus exacerbating major economic problems, might also seem rash; however, it no longer seems inconceivable. Vladimir Putin has been preparing his country to withstand economic pain in light of its neo-imperialist ambitions since the initial invasion of Ukraine in 2014 and may feel that Russia is capable of handling more[39]. Putin prepared Russia for sanctions by building up foreign exchange reserves, reducing its dependence on the U.S. dollar, developing an internal payments system, increasing economic cooperation with China, and working to increase Europe's energy dependence on Russia[40]. He did not, however, count on the unity and resolve of the West[41].

Furthermore, Russia has a long history of using its control of gas and oil to coerce states and achieve political objectives[42]. Russia uses *"pricing policy of energy supplies, asset control, supply cuts, contractual restrictions, and alternative supply routes"*[43] to coerce other states to follow its geopolitical agenda[44]. However, the country tries to hide this fact by having its state-owned energy companies provide a commercial reason for any sudden change in the pricing situation[45]. Even though there are numerous examples of this phenomenon, let us focus on only several of these to illustrate how common this strategy is for Russia and why it is relevant to the Czech Republic and the rest of Europe.

[37] Stoner, K. (2022) "Why Putin Sees Ukraine as an Existential Threat", [in]: *Los Angeles Times*. Available [online]: https://www.latimes.com/opinion/story/2022-02-23/ukraine-russia-putin-invasion-sanctions-biden

[38] Judah, B. (2022) "The Terrible Truth so Many Experts Missed about Russia", [in]: *Slate Magazine*. Available [online]: https://slate.com/news-and-politics/2022/02/ukraine-invasion-putin-is-ruling-alone.html

[39] Fisher, M. (2022) "Putin, Facing Sanction Threats, Has Been Saving for This Day", [in]: *The New York Times*. Available [online]: https://www.nytimes.com/2022/02/03/world/europe/putin-sanctions-proofing.html

[40] https://www.aei.org/op-eds/how-russias-sanction-proofing-failed/

[41] Ibid.

[42] Korteweg, R. (2018) *Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia, Policy Department, Directorate-General for External Policies*, p. 14. Available [online]: https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf

[43] Ibid.

[44] Ibid.

[45] Ibid.

With respect to the Czech Republic, in July 2008, Russia significantly reduced its oil supplies to the country[46]. The authorities claimed that this was because of a technical problem, but it was most likely because the Czech Republic signed an agreement with the United States to host an anti-missile radar system. In the second week of August 2022, Russia cut off oil flow to the Czech Republic, Slovakia, and Hungary because of a dispute over payments[47]. The issue was resolved after a week, and the oil resumed flowing, but it certainly came at a time when the Czech Republic should be very worried about the flow being stopped for a more extended period of time[48].

Another example of Russian and possibly German meddling in gas politics is exemplified by the fact that the Czech Republic used to import close to two-thirds of its gas from Norway[49]. Germany during the early 2000's wanted to get Nord Stream 1 up and running to supply gas to Europe. It is rumored that the Germans helped Russia by altering the transit fees and making it too expensive for the Czech Republic to retrieve gas from Norway. As a result, the Czechs decided to switch to Russian gas through Nord Stream 1, which was completed in 2011[50].

> IT SEEMS IRRATIONAL FOR RUSSIA TO FURTHER HURT ITSELF ECONOMICALLY IN PURSUIT OF ITS WAR WITH UKRAINE AND, BY EXTENSION, THE WEST. HOWEVER, IT CANNOT BE RULED OUT

Furthermore, in December 2008 and January 2009, Russia cut the gas supply to Ukraine because the President of Ukraine, Viktor Yushchenko, had shown support for Georgia in the Russian invasion of Geor-

[46] Korteweg, R. (2018) *Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia, Policy Department, Directorate-General for External Policies*, p. 15. Available [online]: https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf

[47] Eddy, M. (2022) "Russia Says Oil Flows to Three European Union Members Have Been Halted", [in]: *The New York Times*, August 9. Available [online]: https://www.nytimes.com/2022/08/09/business/russian-oil-druzhba-pipeline.html

[48] Reuters (2022) *Russian Oil Flows to Czech Republic Have Resumed, Pipeline Operator Says*, August 12. Available [online]: https://www.reuters.com/business/energy/russian-oil-flows-via-druzhba-czech-republic-resume-1800-gmt-friday-pipeline-2022-08-12/

[49] Strouhal, J. (2022) "Rusové to Vypnou Do Zimy. Jak Podle Experta Zabránit Kolapsu Evropských Plynovodů?" [in]: *Forbes*, July 14. Available [online]: https://forbes.cz/rusove-to-vypnou-do-zimy-jak-podle-experta-zabranit-kolapsu-evropskych-plynovodu/ [in Czech]

[50] Ibid. See also: Al Jazeera (2022) *What Is Nord Stream 1 and Why Is It Crucial to Europe?*, July 26. Available [online]: https://www.aljazeera.com/news/2022/7/26/explainer-nord-stream-1-gas-pipeline-russia-germany-europe

gia in 2008 and had expressed the desire to join NATO[51]. Russia claimed that the cut in gas supply was due to disagreements on payments and pricing[52]. Regardless, Europe suffered the consequences as this occurred in the dead of winter[53]. The Czech Republic saw a 75% decrease in gas flows and was forced to tap into reserves and look elsewhere[54].

These examples occurred on a much smaller scale compared to what would transpire if Russia were to cut off all gas to Europe today. The consequences on both sides would be markedly worse. The most recent Russian invasion of Ukraine is an attempt to destroy the liberal world order and reinstate Russia as a great power. The consequences of this aggression are far-reaching, and many have yet to be realized. It seems irrational for Russia to further hurt itself economically in pursuit of its war with Ukraine and, by extension, the West. However, it cannot be ruled out because Russia has previously used its control over energy markets for geopolitical gain.

> IN THE CZECH REPUBLIC AND OTHER EUROPEAN STATES, THE QUICK ENACTMENT OF POLICIES AIMED AT DIVERSIFYING ENERGY SOURCES COULD POTENTIALLY REDUCE THE NEGATIVE ECONOMIC IMPACT IF RUSSIA DECIDES TO CUT OFF GAS FLOWS TO EUROPE

Moreover, Putin sees the victory of this war as a necessary condition for Russia's future. The country has been almost completely cut out of the Western World and does not seem interested in mending this decoupling. Therefore, in the Czech Republic and other European states, the quick enactment of policies aimed at diversifying energy sources could potentially reduce the

[51] Korteweg, R. (2018) *Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia, Policy Department, Directorate-General for External Policies*, p. 15. Available [online]: https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf. See also: Kramer, A.E. (2009) "Russia Cuts Gas, and Europe Shivers", [in]: The New York Times, January 6. Available [online]: https://www.nytimes.com/2009/01/07/world/europe/07gazprom.html

[52] Korteweg, R. (2018) *Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia, Policy Department, Directorate-General for External Policies*, p. 15. Available [online]: https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf

[53] Kramer, A.E. (2009) "Russia Cuts Gas, and Europe Shivers", [in]: *The New York Times*, January 6. Available [online]: https://www.nytimes.com/2009/01/07/world/europe/07gazprom.html

[54] Ibid.

> A UNITED EU HAS THE ABILITY TO NOT ONLY LEAD BY EXAMPLE IN FIGHTING GLOBAL WARMING, BUT ALSO TO PUT PRESSURE ON HIGH EMITTER COUNTRIES TO CHANGE

negative economic impact if Russia decides to cut off gas flows to Europe.

RISKS FOR REVERTING TO COAL

Global warming is an existential threat to the world, but also poses a threat to the stability, economic prosperity, and national security of the Czech Republic. Reverting to coal as a major energy source will result in increased greenhouse gasses going into the atmosphere and further heating of the planet. While the Czech Republic's coal burning does not harm the environment nearly as much as China, India, nor the United States, which burn the majority of the world's coal, it is still important to contribute to the climate goals of the EU and the world[55]. Every bit counts, and it signals to the world a willingness to deal with the problem, so they should deal with it as well. The warming of the earth will further threaten people's lives around the globe and be a destabilizing factor in Europe and the Czech Republic. As a direct result of increasing temperatures, the Czech Republic is expected to experience less rain and more extreme weather events[56].

The most problematic events for central Europe are major river flooding and droughts[57]. Europe is currently facing a severe drought that is affecting the transportation of goods on rivers, raising the costs of trade, or preventing it altogether[58]. The more damaging effects of climate change on surrounding regions will also negatively impact the Czech Republic. Climate change has many other negative impacts, including impacts on the global food supply, increased risk of diseases, increased political instability, and increased risk to global supply chains[59].

As climate change worsens, we can expect destabilization in the Middle East and North Africa (MENA) region, which is expected to lead to more refugee crises and further destabilization in Europe[60]. Researchers found that there was a correlation between severe droughts and worsening conflicts in the Arab Spring countries prior

[55] https://ember-climate.org/insights/research/top-25-coal-power-countries-in-2020/

[56] https://climateknowledgeportal.worldbank.org/country/czech-republic

[57] https://ec.europa.eu/clima/climate-change/consequences-climate-change_en

[58] Wilkes, W., Wittels, J. and I. Vilcu (2022) "Major Rivers across Europe Are Drying up at the Worst Possible Moment" [in]: *Bloomberg.com*. Available [online]: https://www.bloomberg.com/news/features/2022-08-10/europe-s-low-water-levels-threaten-rhine-river-hit-80b-trade-lifeline2

[59] U.S. Department of Defense, Office of the Undersecretary for Policy (Strategy, Plans, and Capabilities) (2021) *Department of Defense Climate Risk Analysis to the National Security Council,* pp. 8-9. Available [online]: https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF

[60] https://www.wilsoncenter.org/article/climate-change-mena-current-pressures-and-future-dangers

to the 2015 refugee crisis[61]. They believe that worsening droughts put further strain on already weak and vulnerable governments[62]. This, combined with other factors, helped fuel the 2015 refugee crisis that caused bitter disagreements between EU member states and resulted in many deaths among refugees trying to get to Europe[63]. This refugee crisis led to increased voting for far-right parties and fueled the Brexit movement in the UK as well as the rise of Victor Orban[64] in Hungary.

The knock-on effects of climate change have the potential to fuel the rise of the far right and lead to more EU member states making the decision to leave. Climate change has the potential to lead to the rise of authoritarianism, protectionism, and nationalism, which undermine the ability of EU countries to cooperate in the face of climate change[65]. The rise of far-right parties is problematic for many reasons, but for the sake of this paper, the focus is on how this would negatively impact the fight to prevent more global warming.

> GLOBAL WARMING WILL LIKELY NEGATIVELY IMPACT THE GDP OF THE CZECH REPUBLIC AND EUROPE

The far-right has largely abandoned its denial of climate change, given the strong evidence of its effects; however, it has now focused efforts on casting the various ways to fight climate change as something imposed by the 'liberal elite' who are either trying to take your rights or are out of touch with the reality of ordinary people[66]. These groups do not seem to be putting forth any real solutions to dealing with this existential threat. As global warming continues, it will continue to destabilize the MENA region, leading to more refugees and increasing animosity towards these refugees, likely leading to more influence for the far-right, perhaps creating a downward death spiral that can't be escaped. One of the main potential dangers of a stronger far-right movement is that their political power may increase, allowing them to enact policies that further hamper the ability of EU

[61] Rowling, M. (2019) "Climate Stress Drove Wave of Arab Spring Refugees – Researchers", [in]: *Reuters*. Available [online]: https://www.reuters.com/article/us-climatechange-conflict-arabspring-idUSKCN1PH23B

[62] Ibid.

[63] https://www.cnbc.com/2021/08/18/europe-fears-arepeat-of-2015-refugee-crisis-as-afghanistan-collapses.html

[64] Steinmayr, A. (2017) "Did the Refugee Crisis Contribute to the Recent Rise of Far-Right Parties in Europe?", [in]: *Econstor.ifo*, DICE Report, ifo Institut – Leibniz-Institut für Wirtschaftsforschung an der Universität München, Vol. 15(4), p. 26. Available [online]: https://www.econstor.eu/handle/10419/181257. See also: https://www.europenowjournal.org/2019/09/09/the-refugee-crisis-brexit-and-the-reframing-of-immigration-in-britain/ and Beauchamp, Z. (2015) "'Like Animals:' Why Hungary Is Herding Refugees into Miserable Detention Camps", [in]: Vox. Available [online]: https://www.vox.com/2015/9/18/9349081/syrian-refugees-hungary-viktor-orban

[65] Lazarou, E. and L. Tothova (2022) "Climate Change Considerations for EU Security and Defense Policy", [in]: *European Parliamentary Research Service,* p. 2. Available [online]: https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729467/EPRS_BRI(2022)729467_EN.pdf

[66] Milman, O. (2021) "Climate Denial Is Waning on the Right. What's Replacing It Might Be Just as Scary", [in]: *The Guardian*. Available [online]: https://www.theguardian.com/environment/2021/nov/21/climate-denial-far-right-immigration

member countries to fight climate change, making the situation worse.

This kind of economic loss and disruption could further put a strain on the cohesion of the EU. Intra-EU trade makes up 80% of exports in the Czech Republic, and EU member states make up 73% of imports[67]. The EU was designed to promote peace and economic prosperity through integration, and free trade is one of the founding principles of the EU[68].

Furthermore, the Czech Republic receives billions more euros than it pays to the EU[69]. Although there is no way to concretely predict that the extreme effects of climate change would result in the breakup of the EU, recent crises have strained the cohesion of the EU, and thus, this outcome is not implausible. Crises like the 2008 economic recession and the recent migrant crises strained the relations between EU member states[70]. States have their own interests, and when crises emerge, they are much less likely to want to work together and do something that they view as detrimental to them for the sake of a regional body.

An example of this can be found in the United Kingdom's Brexit decision, where the UK's citizens became convinced that leaving the EU was in their interests more so than remaining in it. The extreme impacts of global warming combined with the economic downturn resulting from climate change could expand calls for "Czexit" in a country that is among the most skeptical

> THE REALITY IS THAT TRYING TO FIGHT GLOBAL WARMING BY NOT USING COAL IN A SCENARIO WITHOUT RUSSIAN GAS COULD POTENTIALLY MAKE THINGS WORSE BY PROPELLING INTO POWER POLITICIANS WHO ARE NOT INTERESTED IN FIGHTING CLIMATE CHANGE AT ALL

of the EU, of the member nations[71]. For example, during the first weekend of September, 70,000 people gathered in Prague to protest, among other things, the European

[67] https://european-union.europa.eu/principles-countries-history/country-profiles/czechia_en

[68] https://european-union.europa.eu/priorities-and-actions/actions-topic/trade_en

[69] https://www.cfr.org/backgrounder/how-does-european-union-work

[70] Ibid.

[71] https://www.euronews.com/2021/10/08/czexit-what-chance-of-a-referendum-on-the-czech-republic-quitting-the-eu

> WESTERN VALUES AND DEMOCRACY ARE A DIRECT THREAT TO PUTIN'S REGIME, AND HE KNOWS THIS

Union[72]. The current crises stemming from the war in Ukraine were at the core of this development[73].

Crises – whether stemming from the war or climate in the future – lead to dissatisfaction with the EU. Leaving the EU, having a weakened EU, or the dissolution of the EU would increase the cost of trade and further degrade economic growth in the Czech Republic. In addition, a weaker EU would make it more difficult to develop and approve comprehensive regional agreements focused on fighting global warming. The European Union standing together is a much stronger bloc than any one nation in it. A united EU has the ability to not only lead by example in fighting global warming, but also to put pressure on high emitter countries to change[74].

Unfortunately, the threat of a weakened EU is present whether or not the Czech Republic chooses to revert to coal. Reverting to coal can potentially increase the risks of climate change and instability. On the other hand, not reverting to coal might fuel economic crises and breed political instability, providing an opportunity for the far-right to assert itself and neglect the issues of climate change especially since a recession would decrease investment in green energy.

Climate change is also a national security risk. Extreme weather events reduce the ability of militaries to be able to deploy and maintain military installations[75]. A recent example of climate change disrupting operations occurred during a heat wave in the United Kingdom, where planes were unable take off because the runway was too hot and melted the tires of the aircraft[76]. Although this was not at a military base, the same problem could occur at one, which would be a significant national security risk. In addition, climate change will further destabilize countries in the MENA and Sub-Saharan Africa regions. This could lead to more violent non-state actors as governments will be unable to provide for their populations[77], and these could become security threats to Europe and the Czech Republic.

[72] WION (2022) *Around 70,000 People Protest against Government in Prague over Rising Inflation*. Available [online]: https://www.youtube.com/watch?v=VdN9cD-6nZcU

[73] Ibid.

[74] Wolf, M. (2021) "Giving Green a Chance", [in]: *Deloitte Insights*. Available [online]: https://www2.deloitte.com/us/en/insights/economy/eu-climate-change-carbon-tariff-global-trade.html

[75] Lazarou, E. and L. Tothova (2022) "Climate Change Considerations for EU Security and Defense Policy", [in]: *European Parliamentary Research Service,* p. 2. Available [online]: https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729467/EPRS_BRI(2022)729467_EN.pdf

[76] https://www.cbsnews.com/news/extreme-heat-in-uk-disrupts-air-travel-melts-airport-runway/

[77] Lazarou, E. and L. Tothova (2022) "Climate Change Considerations for EU Security and Defense Policy", [in]: *European Parliamentary Research Service*, p. 5. Available [online]: https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729467/EPRS_BRI(2022)729467_EN.pdf. See also: Matisek, J. (2019) "Where Climate Change and Violent Non-State Actors Collide: Conflict and Security Force Assistance in the Sahel", [in]: *Modern War Institute*. Available [online]: https://mwi.usma.edu/climate-change-violent-non-state-actors-collide-conflict-security-force-assistance-sahel/

> THE THREAT THAT RUSSIA POSES IS NOT SOMETHING THAT CAN BE EASILY DISMISSED

Global warming will likely negatively impact the GDP of the Czech Republic and Europe. The Swiss Re Institute simulated the economic loss as a percentage of GDP that will occur at different global temperature increases. Even if the world meets the Paris target of below 2° Celsius global warming, Europe is expected to lose 2.8% of its GDP by 2050[78]. If there is a 2° Celsius increase, then Europe could lose 7.7% of its GDP.

Since there is an over 50% chance that global temperatures will rise by 2 degrees Celsius, the economic ramifications are considerable[79]. A loss of 7.7% of GDP is already higher than the 6% some countries might lose if Russian gas is completely cut off from Europe. A 2.6° Celsius increase would lead to an 8% drop in GDP in Europe, and a 3.2° Celsius increase would lead to a 10.5% decrease in GDP in Europe[80]. The Czech Republic could lose as much as 11% of its GDP by 2050 if the world heats to a worst-case scenario of 3.2° Celsius[81]. These economic impacts will compound on top of other instability likely fueled by global warming.

RISKS FOR CONTINUING TO MOVE AWAY FROM COAL

As previously stated, it has recently been estimated that if Russia were to cut off the flow of gas to Europe, then the Czech GDP could decrease by 6%[82]. This would certainly cause a severe recession, the magnitude of which would cause massive job loss – including in the crucial industries discussed previously. Additionally, Czechs would be unable to afford the increase in energy prices that would come at the same time as massive job loss. Already in the first weekend of September, there was a protest against high energy prices, inflation, support for Ukraine, the EU, and NATO in Prague that attracted 70,000 people[83]. This development would create an unstable and poor economic environment which would, in turn, stifle growth[84]. As a result of this economic downturn, the government and

[78] Guo, J., Kubli, D. and P. Saner (2021) "The Economics of Climate Change: No Action Not an Option", [in]: *Swiss Re Institute*, p. 2. Available [online]: https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf

[79] Jacobo, J. (2022) "There Is a 50% Chance of Temperatures Exceeding 2 Degrees Celsius Unless Climate Pledges Are Strictly Implemented: Study", [in]: *ABC News*. Available [online]: https://abcnews.go.com/International/50-chance-temperatures-exceeding-degrees-celsius-climate-pledges/story?id=84033529#:~:text=LOG%20IN-

[80] Guo, J., Kubli, D. and P. Saner (2021) "The Economics of Climate Change: No Action Not an Option", [in]: *Swiss Re Institute*, p. 2. Available [online]: https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf

[81] Ibid., p. 11.

[82] Elliot, L. (2022) "Russian Gas Shutoff Would Send Some EU Countries into Recession, IMF Warns", [in]: *The Guardian*. Available [online]: https://www.theguardian.com/business/2022/jul/19/russia-gas-shutoff-eu-countries-europe-recession-imf

[83] WION (2022) *Around 70,000 People Protest against Government in Prague over Rising Inflation*. Available [online]: https://www.youtube.com/watch?v=VdN9cD-6nZcU

[84] Claessens, S. and M.A. Kose (2009) "What is a Recession", [in]: *Finance & Development*. Available [online]: https://www.imf.org/external/pubs/ft/fandd/basics/recess.htm

companies will not have the funds to invest in innovative technology that needs to be developed for the European Union and the Czech Republic to reach their green goals[85].

Additionally, there will be less money to invest in existing renewable energy technology. The resulting recession from a sudden cut-off of Russian gas to Europe would severely impact the ability of the Czech Republic to reach its green goals because it would lack the funds needed to invest.

Furthermore, a deep recession could lead to the rise of the populist far-right that would further hamper the ability of the Czech Republic to meet its green goals. Far-right parties have been gaining ground in recent years in part due to income inequality[86]. Far-right parties are much more likely to doubt global warming than other parties[87]. Having a massive economic downturn that will breathe more life into the right is dangerous for many reasons, including (and especially) the ability to fight climate change. If the economic recession led to more far-right politicians in power, then they would most certainly make reaching the green goals more difficult.

If the ultimate goal is to fight global warming, then having the economy crash and electing politicians who are not motivated to fight it is a serious problem. The reality is that trying to fight global warming by not using coal in a scenario without Russian gas could potentially make things worse by propelling into power politicians who are not interested in fighting climate change at all.

> UNFORTUNATELY, THE REVISIONIST AND REVANCHIST FOREIGN POLICY PUT FORWARD BY RUSSIA HAS RESULTED IN A HORRIFIC WAR IN UKRAINE

A weakening economy may also have the effect of making it more challenging to support Ukraine against the major geopolitical threat to Europe – Russia. Vladimir Putin even said in his speech at the June 2022 St. Petersburg International Economic Forum that, as Europeans face a cold winter and suffer the economic impacts of the sanctions their governments have imposed on Russia, populist parties will increase in popularity, and new elites that are more favorable to Russia will come to power[88]. Countries such as the Czech Republic, which spent time under the boot of the USSR, fully understand the dangers

[85] Moreira, S. and J. Granja (2020) "Recessions Can Stifle Product Innovation for Years", [in]: *Kellogg Insight*. Available [online]: https://insight.kellogg.northwestern.edu/article/recession-product-innovation

[86] Jay, S. et.al. (2019) "Economic Inequality and the Rise of Far-Right Populism: A Social Psychological Analysis", [in]: *Journal of Community & Applied Social Psychology*, Vol. 29(5), p. 420. Available [online]: https://doi.org/10.1002/casp.2409

[87] Forchtner, B. (2019) "Climate Change and the Far Right", [in]: *Wiley Interdisciplinary Reviews: Climate Change*, Vol. 10(5), p. 2. Available [online]: https://doi.org/10.1002/wcc.604

[88] https://www.foreignaffairs.com/russian-federation/world-putin-wants-fiona-hill-angela-stent

> REVERTING BACK TO COAL HAS THE POTENTIAL TO SEVERELY HURT THE ABILITY OF THE CZECH REPUBLIC TO MEET ITS CLIMATE GOALS

of a revanchist and revisionist Russia. The latter is not only at war with Ukraine, but also with the West and the liberal, rules-based international order that has benefited the world since the end of WWII[89]. This is important for decision makers to take into account because the whole reason the Czech Republic and the EU are having this problem is because of their continued support of Ukraine. If they did not support Ukraine, then this article would be unnecessary.

Western values and democracy are a direct threat to Putin's regime, and he knows this; therefore, he feels he must destroy them. This, combined with the fact that he believes that he must restore the territory of the USSR, means that Russia is a direct threat to the European Union and the Czech Republic[90]. Russian neo-imperialism threatens to turn the world back in time to a place where great powers with spheres of influence, as well as smaller states, were unable to make decisions for themselves. The liberal world order may have flaws, but it certainly gives nation states more decision-making opportunities than the world that Putin would like to return to.

The threat that Russia poses is not something that can be easily dismissed. Thankfully, though, for the rest of the Western world, brave Ukrainians are willing to fight to defend their homeland and, by extension, the West. However, a rapid decrease in GDP and a resulting recession will hinder the ability to support Ukraine economically and with military equipment in its war with Russia. The West has an unprecedented opportunity to bury Russia's ambitions in Ukraine – a country that has exceeded all expectations and continues to surprise[91].

In addition, a recent study by Yale economists found that sanctions, combined with many companies leaving Russia, are crippling the Russian economy and will continue to do so[92]. Losing the Russian gas and not supplementing the energy deficit partly with coal runs the risk of the Czech Republic and its allies not being able to support Ukraine in its hour of need due to a significant economic crisis. Temporarily converting to coal could allow for the continued support of Ukraine – a primary strategic objective. A Russian defeat in Ukraine would not only be beneficial to Ukraine but also to the West, as it would result in a much weaker Russia that would

[89] https://www.economist.com/leaders/2015/02/12/putins-war-on-the-west

[90] Ibid.

[91] Barnes, J.E. and E. Schmitt (2022) "Russia's Shortfalls Create an Opportunity for Ukraine, Western Officials Say", [in]: *The New York Times*, August 4. Available [online]: https://www.nytimes.com/2022/08/04/us/politics/russia-weapons-ukraine.html

[92] Sonnenfeld, J. et.al. (2022) "Business Retreats and Sanctions Are Crippling the Russian Economy", [in]: *SSRN Electronic Journal*, August, pp. 3-4. Available [online]: https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID4179598_code3324709.pdf?abstractid=4167193&mirid=1

be less capable of undermining the EU and its allies.

CONCLUSIONS: DAMNED IF YOU DO, DAMNED IF YOU DON'T

Unfortunately, the revisionist and revanchist foreign policy put forward by Russia has resulted in a horrific war in Ukraine, and there are no easy options regarding energy security and working to meet the necessary goals to fight global warming. Decision makers must weigh between potential economic catastrophe now or more problems further down the line due to global warming.

Democratic leaders must also weigh what option will give them the best opportunity to help Ukraine defeat Russia. Seriously weakening a major strategic rival for an extended period of time is not an opportunity to be passed up lightly. The world has entered perilous times, and the decisions made today will have significant long-term impacts.

Reverting back to coal has the potential to severely hurt the ability of the Czech Republic to meet its climate goals. While it is only one small country contributing to global warming, it is still contributing. Both the Czech Republic and the wider European Union not meeting their climate goals means further economic hardship and instability in the future. Global warming threatens the national security of the said state and the continuity of the EU in the long term. Crises have caused division in the past in the European Union, and global warming will cause a litany of problems.

Nevertheless, not reverting back to coal even in the short term has its own share of issues. It is not even winter yet, and energy prices are soaring. If Russia fully cuts off gas to Europe, it could severely impact both the Czech and EU economies. This will, in turn, inflame domestic tensions, cause economic hardships, strain the support for the EU and Ukraine, and, most importantly, limit funds needed to invest in research and infrastructure to make a sustainable and green energy-centered country.

One thing is certain: decision makers in the Czech Republic have no easy choices ahead of them. Both options have negative consequences, and policymakers must weigh them both, while keeping in mind the fact that a sustainable future is the ultimate goal – regardless of whether coal takes a larger role in the energy mix in the short term.

*

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Deal or No Deal: Possible Hurdles for the European Green Deal

* MÁTÉ HAJBA

The summer of 2022 saw the mercury rising to record heights[1], as the topic of conversations turned once again to the problem of climate change. This was a particularly recurrent discussion with my group of friends – one that has been persistently bobbing up every few months over the years. The reactions – for when it comes to solutions there were none – were also not very innovative, and we may often hear that "*It is pointless to have children in these circumstances*", "*if this goes on like this, humankind will perish*", or "why won't someone do something". This conversation in the sweltering room is repeated all over Europe. People are gazing at their sweating navels, crying for solutions, but seldom offering any. They feel their plea is falling on deaf ears. However, it is not the case.

> POPULISTS PLAY INTO THE DEEPEST FEARS OF PEOPLE – EXPLOITING THEM AND OFFERING ILLUSORY SOLUTIONS

Politicians and decision makers are eagerly listening to such fears. They are also anxious to offer help. Whether this help is, in fact, helpful or not is another matter. Populists play into the deepest fears of people – exploiting them and offering illusory solutions. Meanwhile, populism is on the rise in Europe[2], because populists listen. They pay attention to the masses suffering climate anxiety[3] – a growing problem in itself. Instead of solving issues, populist create more problems so that they can be seen as the ones who are protecting people from these[4].

It is painfully clear that one of the key priorities of the European Union (EU) is, undoubtedly, to tackle the issue of climate change. However, climate policies can be easily hijacked by populists offering unrealizable solutions and impossible outcomes. This is just one of the many hurdles standing in the way of the European Green Deal.

In order to be successful, caution must be taken to stay on point and not to be sidetracked by populist or *feel-good* policies or get trapped in echo chambers, while at the same time prepare for future challenges and innovations as well as factor in a multidisciplinary approach – involving global, regional, and local politics, science, trade, economics, and psychology.

[1] Kirby, P. (2022) "Heatwave: Ferocious European Heat Heads North", [in]: *BBC News*. Available [online]: https://www.bbc.com/news/world-europe-62216159

[2] Collinson, S. (2022) "Trump-Style Populism Rises in US and Europe as Putin Assaults World Order", [in]: *CNN*. Available [online]: https://edition.cnn.com/2022/04/12/politics/rise-of-extremism-us-and-europe/index.html

[3] Schwartz, S.E.O. et al. (2022) "Climate Change Anxiety and Mental Health: Environmental Activism as Buffer", [in]: *Current Psychology*. Available [online]: https://doi.org/10.1007/s12144-022-02735-6

[4] 4liberty.eu (2016) "Populism, Radicalism, Migration", [in]: *4liberty.eu Review,* No. 4. Available [online]: http://4liberty.eu/4liberty-eu-review-4-is-already-available-online-and-for-download/

Furthermore, it is important to implement and communicate the proposed policies in a way that will bring results while not alienating people. Let us, therefore, focus on the possible hurdles, examine them, look at various examples and best practices, and of course, offer solutions.

The European Green Deal is a dramatic challenge for an unhealthy European economy. Let us hope we will remember the EU and the Green Deal as a torchbearer in many fields – such as sustainability, energy, research and innovation, trade, and not as overambitious desire to be first at any cost.

There are (and will be) some challenges, and policymakers must take heed not to stumble on the hurdles in the way. Only then can the Green Deal be a victory for all. It is time for the sweltering rooms to turn into cool areas where people lift their gaze up from their navels, look each other in the eyes, and start talking about realizing a livable future.

> CLIMATE POLICIES CAN BE EASILY HIJACKED BY POPULISTS OFFERING UNREALIZABLE SOLUTIONS AND IMPOSSIBLE OUTCOMES

DREAM OF A "GREEN AND PLEASANT LAND"

Ever since the dawn of time, humankind has been dreaming of both living in growing comfort and in harmony with nature[5]. William Blake contrasts the wish to find heaven in "*England's green and pleasant land*" to the "*dark satanic mills*" of the industrial revolution, according to the popular interpretation[6]. Art, history, and philosophy are awash with a primordial will to live in peace with nature. Yet, environmentalism in the true sense did not get any considerable traction until recently, and progress was slow.

The problem is far from being solved. Despite public support and enacted green policies, more efforts are needed. Policies are often not ambitious enough, or their net effects are more harmful than beneficial[7]. In all the zeal to protect the environment, it is not enough to take action to soothe our conscience. The difficult part is that the right action must be taken. The European Green Deal has been criticized[8]

[5] Horton, P. and B. Horton (2019) *Re-Defining Sustainability: Living in Harmony with Life on Earth*. Available [online]: https://www.sciencedirect.com/science/article/pii/S2590332219300259

[6] Lienhard, J.H. (1999) *Poets and the Industrial Revolution*. Available [online]: https://uh.edu/engines/epi1413.htm

[7] https://theconversation.com/why-some-green-policies-can-actually-harm-progress-on-climate-change-130904

[8] https://www.euractiv.com/section/energy-environment/news/green-package-unleashes-criticism-against-von-der-leyen-inside-the-college/?utm_source=pocket_mylist

a lot, yet it provides a historic opportunity. However, its implementation lacks details, and as such, the policy needs to be honed to be effective.

Thus, the EU's policy greatly depends on European citizens, as well as the decision makers.

The main hurdle, of not enough traction for green policies has been overcome, through time and effort. Environmental policies are gaining popularity. Yet, often adjacent science (that is not environmental, but other fields such as psychology), and politics are lagging behind. There are several more hurdles in the way to a successful implementation.

CRYING WOLF

For so long so many baseless claims[9] were made, and as a result, many warnings about climate change became noise, making difficult to distinguish between scientific facts and scaremongering. Umberto Eco argues[10] that important information can be hidden by creating noise, which is talking too much about a topic. Reporting about a politician partying all the time[11] will rob the topic of being newsworthy, so when something scandalous happens, it will be hidden in the noise. The same notion is applicable to climate change. The media tends to over exaggerate issues, so when scientific claims are made, it may be difficult for an average Joe to filter all the information about climate change, and, in the end, it all boils down to average citizens. They vote, influence decisions and policies, and make choices that add up

> CLIMATE ANXIETY IS A VERY REAL AND WIDESPREAD PROBLEM

to detrimental actions for mitigating or worsening climate change. According to Espen Stoknes, a Norwegian psychologist and politician [12], *"More than 80 percent of all news and mainstream media play up the issue of doomsday or catastrophe. From psychological research, we know that if you overdo the threat of catastrophe, you make people feel fear or guilt or a combination. But these two emotions are passive. They make people disconnect and avoid the topic rather than engage with it"*[13].

There is no doubt that people are worried about climate change. A survey by the European Investment Bank fund[14] revealed that people in the European Union deem climate change the biggest challenge (47%), while healthcare and unemployment are the next to most pressing challenges (with both 39%). If, however, alarmism will continue to weigh on people's minds, it will lead to a passive stance on tackling the

[9] https://www.aei.org/carpe-diem/50-years-of-failed-doomsday-eco-pocalyptic-predictions-the-so-called-experts-are-0-50/

[10] Eco, U. (2020) *How to Stop a Fascist,* London: Harvill Secker.

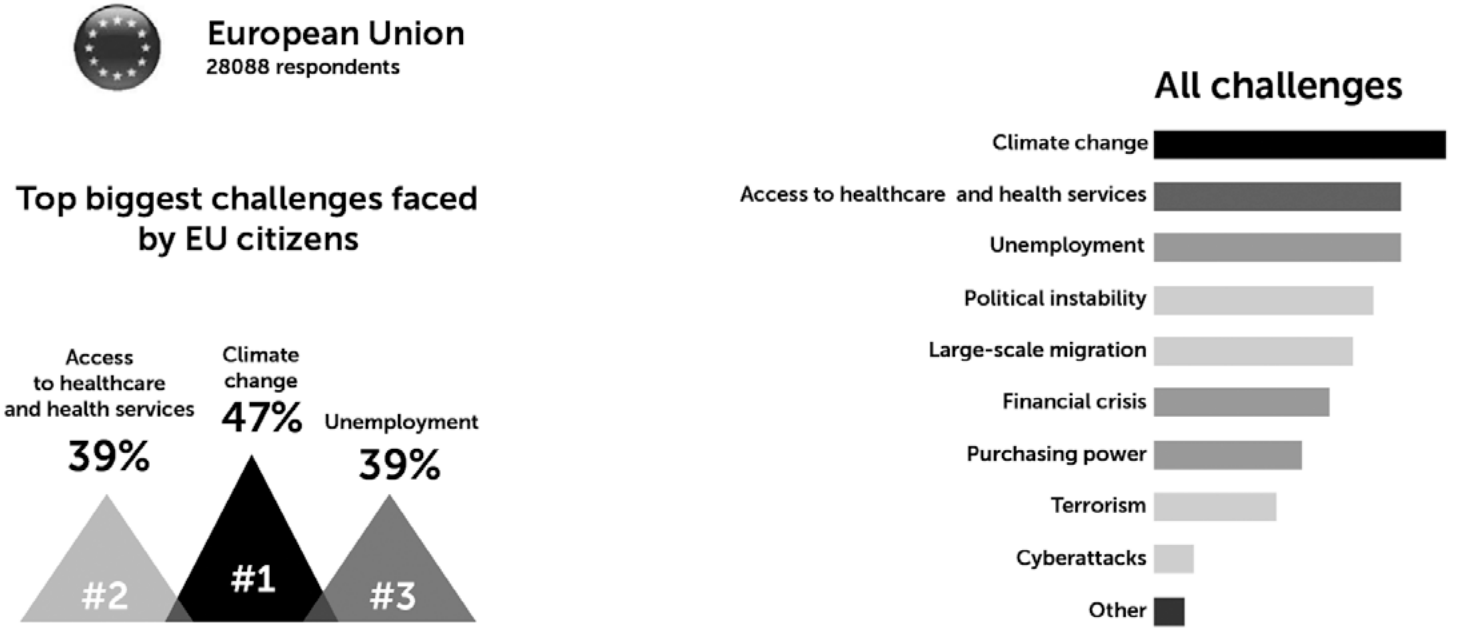
[11] Ibid.

[12] https://greatergood.berkeley.edu/article/item/how_to_overcome_apocalypse_fatigue_around_climate_change

[13] Ibid.

[14] European Investment Bank (2020) *The EIB Climate Survey 2019-2020*. Available [online]: https://www.eib.org/en/publications/flip/the-eib-climate-survey-2019-2020/index.html#p=17

Figure 1: Biggest Challenges Faced by European Citizens



Source: European Investment Bank (2020) The EIB Climate Survey 2019-2020. Available [online]: https://www.eib.org/en/publications/flip/the-eib-climate-survey-2019-2020/index.html#p=17

> NOT ONLY SHOULD THE EUROPEAN UNION BEWARE OF ENVIRONMENTAL POPULISM, BUT IT SHOULD ALSO FOCUS EVEN MORE ON EXISTING RIGHT- AND LEFT-WING POPULIST MOVEMENTS TO SEE WHY THEY ARE SUCCESSFUL

problem and will, in the end, create fatigue [See: Figure 1].

It is one thing to think of climate change as a challenge and a desire to do more about it, but worrying about the topic too much is another thing entirely. Climate anxiety is a very real and widespread problem. According to a study in The Lancet, 75% of young people are seriously worried about the future, and almost 50% of the respondents said that climate anxiety negatively affects their everyday lives[15].

Anxiety can obviously be debilitating, and as such, the European Green Deal will also aim to "*improve our health and well-being*" [16]. This should also focus not only on physical, but also on mental health, which a greener environment would undoubtedly bring. Fearmongering about climate will not solve the problems but would only beget more issues. Anxiety is something everyone must live with. Resilience, however, should be a key factor so that these anxieties will not get out of hand.

FEAR AND LOATHING

From Brexit to Trump, Hungary and Poland, populism emerges in all places. Yet, we often associate populism with right-wing movements. This is not necessarily accurate, but instead depends on definitions.

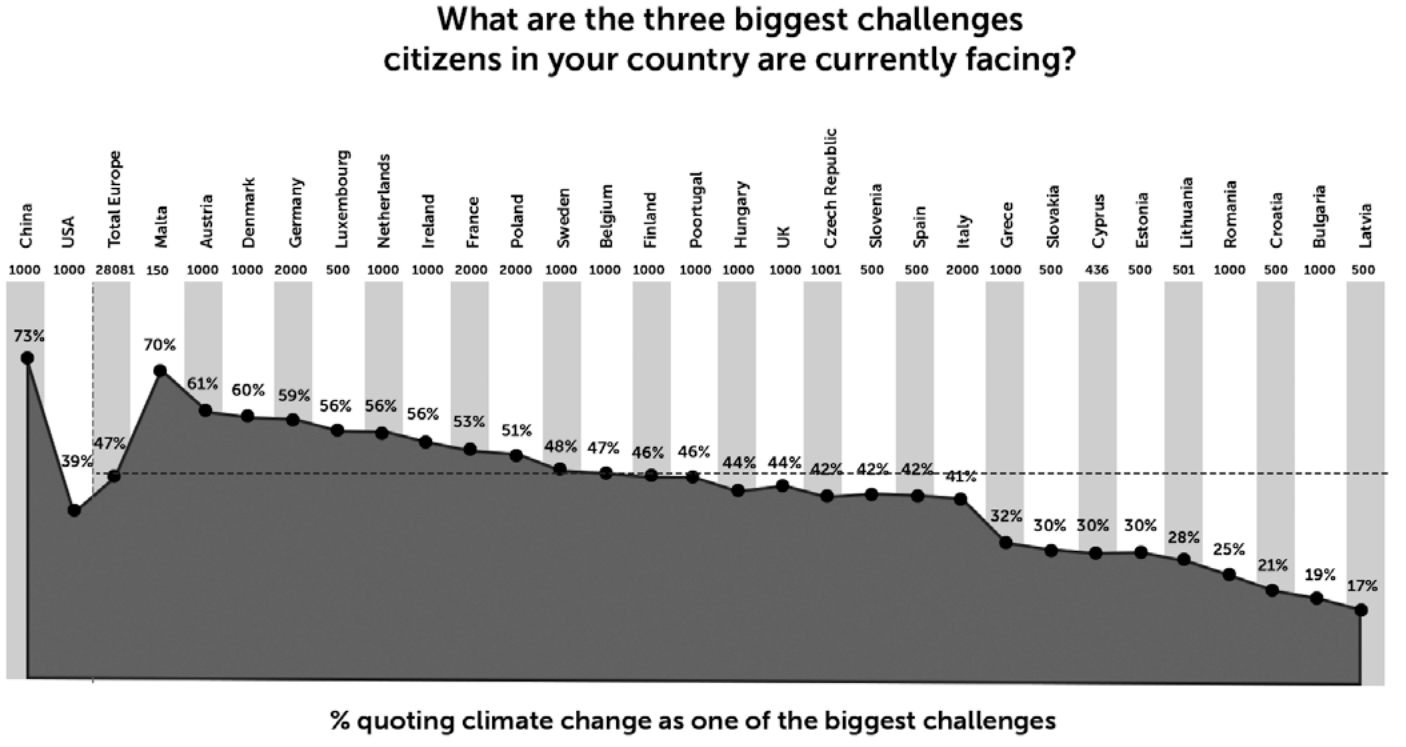
Needless to say, populism can occur anywhere – there is not only right-wing populism, but left-wing, liberal and green populism may exist as well. As populist politicians contrast the people they champion to others, or blame circumstances rather than bad actions, it is necessary to make those people whose vote they covet, afraid. Whether the target of this scaremongering are minorities, immigrants, the EU, or something else, populists build on the Carl Schmittian idea[17] of identifying the

[15] Mufarech, A. (2022) *Your Crushing Anxiety About the Climate Crisis Is Normal*. Available [online]: https://www.smithsonianmag.com/science-nature/how-to-deal-with-the-anxiety-caused-by-the-climate-crisis-180980093/

[16] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en

[17] Schmitt, C. (2007) *The Concept of the Political*, Chicago: The University of Chicago Press.

Figure 2: Citizens of Western Europe are more likely to cite climate change as an issue than Eastern Europeans



Source: Source: European Investment Bank (2020) The EIB Climate Survey 2019-2020. Available [online]: https://www.eib.org/en/publications/flip/the-eib-climate-survey-2019-2020/index.html#p=17

foe, and then they build up fear against it. The populists in turn will promise protection against this enemy.

According to a study, anxiety features heavily[18] in populism: "*By employing the power of imagination, myth, and fantasy, and by capitali[z]ing on ontological insecurity and existential anxiety in times of uncertainty, far-right leaders can reach a large subsection of society. [...] That is, the emotional governance of far-right populism is principally oriented towards naming groups and individuals to be feared, rather than towards an acceptance of anxiety as an insurmountable and necessary feature of subject-formation.*"

In case of green populism, the enemy is climate change. The Green New Deal in the USA, championed by Alexandria Ocasio-Cortez,[19] is a prime example of green populism. The program, though it failed to pass, would have been untenable in the timeframe, would have robbed private enterprises of doing what they do best, and public services would have substituted well established and working private ones. As the goals outlined were unattainable, it was an empty promise to gain political capital by riding the waves of climate anxiety.

According to an essay on populism by the Centre for Understanding Sustainable Prosperity "*One way in which the climate 'emergency' has been welded together with political tactics of an 'exceptional' nature is in the 'Climate mobile[z]ation' movement, which seeks to model climate policies along the lines of wartime mass mobile[z]ation of economic and civic infrastructures. This type of emergency response, at national and international scales, is one possible manifestation of what a democratic 'green populism' might look like*" [20]. It is vital that the European Green Deal does not go down this particular alley and outlines unattainable goals and dangle empty promises in front of people afraid of the future. So far, environmental (or green) populism does not seem to threaten the EU's policy so much, but there is all too well-known right-wing populism that does[21].

> HAVING A SUSTAINABLE ECONOMY THAT IS BENEFICIAL FOR BOTH PEOPLE AND THE ENVIRONMENT IS SOMETHING NOBODY DISAGREES ON

[18] Kinnvall, C. and T. Svensson (2022) "Exploring the Populist 'Mind': Anxiety, Fantasy, and Everyday Populism", [in]: The British Journal of Politics and International Relations, Vol. 24(3), pp. 526-542. Available [online]: https://journals.sagepub.com/doi/full/10.1177/13691481221075925

[19] Davies, W. (2020) "Green Populism?: Action and Mortality in the Anthropocene", [in]: *Environmental Values*, Vol. 29(6), pp. 647-668.

[20] Ibid.

[21] https://www.iemed.org/publication/the-resistable-rise-of-populism-in-europe-and-its-impact-on-european-and-international-cooperation/

> NEWS ABOUT CLIMATE ACTIONS ARE FRAUGHT WITH DISINFORMATION

While green populists fear an environmental crisis, right-wing populists fear green activism, whether it manifests in EU policy that overrides member states legislation, or they are simply afraid that people working in polluting sectors would lose their jobs[22]. People in more affluent areas do not depend on the brown economy.

It is logical that more affluent areas can afford to be greener. For example, they can afford sustainable energy, and will not have to scrape together whatever they can to burn during the winter, so they will not freeze to death.

The Eastern part of the EU, which is historically poorer, is by far a larger air polluter. According to the European Environmental Agency, *"[t]he (...) data show that air pollution is still a major health risk for Europeans. In central and eastern Europe, the burning of solid fuels for domestic heating and industry results in high concentrations of both fine and coarse particulate matter, as well as benzo[a]pyrene, a known carcinogen"* [23]. Yet, it is exactly the areas with worse air quality, where people do not cite climate change as a problem as much as in Western Europe [See: Figure 2].

Populist movements, though omnipresent in the EU[24], tend to be strong in the poorer regions, as populists thrive on of anxious people, and less affluent areas spawn a lot of people with an existential dread[25]. Eastern Europe is a hotbed of populist move ments[26]. Seeing how green policies tend to affect the poor much more[27] with energy prices rising, it is, unfortunately, not surprising that green policies are looked at with somewhat of a dubious eye.

Not only should the European Union beware of environmental populism, but it should also focus even more on existing right- and left-wing populist movements to see why they are successful. Only then can the EU act on the fact that poorer areas care less about the environment and favor populists more.

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[22] Bohnenberger, K. (2022) *Greening Work: Labor Market Policies for the Environment*. Available [online]: https://link.springer.com/article/10.1007/s10663-021-09530-9

[23] Balfour, R. (2017) "Air Pollution Still Too High in Most EU Member States", [in]: *European Environment Agency*. Available [online]: https://www.eea.europa.eu/highlights/air-pollution-still-too-high-1#:~:text=The%20EEA%20data%20show%20that,%5Dpyrene%2C%20a%20known%20carcinogen

[24] https://www.iemed.org/publication/the-resistable-rise-of-populism-in-europe-and-its-impact-on-european-and-international-cooperation/

[25] Simard, A. et al. (2022) "Job Satisfaction and Psychological Distress among Help-Seeking Men: Does Meaning in Life Play a Role?", [in]: *Behavioral Sciences*, Vol. 12(3), pp. 58. Available [online]: https://doi.org/10.3390/bs12030058

[26] Populism and Party System Change in Europe. Available [online]: https://europe.columbia.edu/content/rise-and-resilience-populism-eastern-europe

[27] https://www.spectator.co.uk/article/how-green-policies-hurt-the-poor

Unfortunately, every single EU policy will be a thorn in someone's eye. Most will be used by Eurosceptics to whip up anti-EU sentiments, extolling the merits of decision making on a local level rather than a centrally planned one-size-fits-all policy. There is truth even in the most blatant populist Eurosceptic lie. Local decision making is usually better (given proper checks and balances, a mature democracy, and the rule of law) than centralized legislation. However, there are EU core values on which most member states should agree on – at least on paper. Having a sustainable economy that is beneficial for both people and the environment is something nobody disagrees on. How to bring it about, however, is a matter of much schism. For this reason, a strong public-opinion campaign is necessary to show the benefits of the European Green Deal.

THE PUBLIC EYE

It is no secret that the European Union is not doing well in terms of communicating its policies[28]. On all levels, it mainly follows a *shoot-and-forget* strategy from a PR perspective. It acts without stressing the importance of explaining the *why*, the *how*, and the benefits of such actions to the public. It hopes, rather naively, that actions speak for themselves – they do not. Eurosceptic voices thus easily sway the public opinion, at least to some extent, by pursuing a very vocal marketing campaign against the European Union, while the EU fails to do an adequate marketing campaign for itself.

> THE PROBLEM WITH GREEN POLICIES IS THAT THEY REQUIRE A GLOBAL EFFORT TO BE EFFECTIVE

Mounting Euroscepticism, which had been left virtually unchecked for years, culminated in Brexit, which gave a new boost to those wanting to leave the EU[29]. These movements, mostly led by populists, exploit the EU's lack of sufficient communication, and depict every EU policy as the meddling of EU bureaucrats[30].

Disinformation, colloquially known as 'fake news', features heavily as a hurdle in implementing and popularizing EU policies. In fact, Eurosceptics used disinformation against Brussels so much that it got its own name: 'Euromyth'. These are the familiar, ridiculous scrapes about bureaucrats legislating the curvature of the cucumber or banana and forcing farcical rules on people. Most have a grain of truth at their core, deliberately blown up, distorted and misunderstood. Their funny nature is almost like

[28] https://www.friendsofeurope.org/insights/eu-communication-what-are-the-biggest-challenges-and-what-can-the-institutions-do-to-address-them/

[29] Riss, N. (2019) *Euroscepticism in the Face of Brexit*. Available [online]: https://www.ie-ei.eu/Ressources/FCK/image/RECHERCHE/Theses_2019/RISS-Nikolaus.pdf

[30] https://www.dw.com/en/hungary-orban-accuses-eu-us-of-meddling-as-election-looms/a-59607853

> ENERGY POVERTY IS NOT A NEW THING IN THE EU

a folk tale, with decision makers in Brussels, and the common, honest folk, fighting their eternal battles. They are designed to be entertaining and popular. Whether they are believed or not is beyond the point. If even a fragment of them sticks, they have achieved their goal.

News about climate actions are fraught with disinformation. Whether it originates from actors willing to undermine the integrity of those bringing actions[31] (in this case the EU), which is the modus operandi of Russia, for instance, or from corporations[32] wanting to pose as smaller polluters than they actually are, it is easy to get lost in the wilderness of fact and fake news. The most vulnerable people who will be affected by climate action are apt to believe this sort of disinformation due to positivity bias. They would believe that if green policies hurt them, the EU actively wants to cause them harm, take their jobs, or that climate change does not really exist at all, and that it is all a hoax[33].

The EU has a huge responsibility in paying attention to these people and addressing these issues not only on a policy level, but also on a communication level. Just imagine that you are someone living in the EU, working in a sector that will soon cease to exist due to the green policies, as that sector is too polluting and will be substituted by a sustainable one. You are already poor and can barely afford to sufficiently heat your home. Green policies are bound to further increase energy prices, so you will have to transfer to other heating methods. You are unable to afford heating or refurbishing, and are about to lose your job[34]. How keen would you be on green policies then, which are the privilege of those able to afford it?

The sad fact is that the European Union is aware of the problem of energy poverty and just transition to new jobs. There are proposals and strategies on a policy level, but their effectiveness is another question. But have you ever heard of the Just Transition Platform[35] for instance, set up by the EU and accessible to people and citizens? Clearly, the EU is not doing a good job at communicating its solutions, and thus can easily alienate people who assume that nothing is being done. Eurosceptic voices and dissenting people can be a significant obstacle in the way

[31] See: 4liberty.eu Review (2020) *DisinforNation: Disinformation Practices in CEE*, No. 13. Available [online]: http://4liberty.eu/category/review/review-13/

[32] https://www.pbs.org/newshour/world/climate-disinformation-continues-to-leave-a-mark-as-world-gets-hotter

[33] https://www.weforum.org/agenda/2022/08/is-climate-denialism-dead/

[34] According to the European Commission, *"[a]n EU-wide survey concluded that in 2020, 8% of the EU population said that they were unable to keep their home adequately warm. Energy poverty therefore remains a major challenge and lifting vulnerable citizens out of it is an urgent task for the EU and its members"*. See: https://energy.ec.europa.eu/topics/markets-and-consumers/energy-consumer-rights/energy-poverty_en

[35] European Commission (2020) *The Just Transition Mechanism: Making Sure No One Is Left Behind*. Available [online]: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_en

of the successful implementation of the Green Deal.

REAP WHAT YOU SOW

The road to hell is paved with good intentions, goes the adage. The problem with green policies is that they require a global effort to be effective. This has never been done before. Thus, there is a lot of *trial and error*. Numerous rushed policies were enacted (whether in private or public) only to show that something is being done, so that those who passed it, and those who see it being done, feel good.

Take the example of nylon bags for example. They are not good for the environment, true. However, by phasing out the trusted nylon bag, it is being replaced by single-use paper bags, which one can only hope will not disintegrate at its first use, or by canvas bags. Even these two solutions (nylon and canvas) are a bigger burden on the environment as a net effect than the plastic bags[36].

A particularly good representation of feel-good policies backfiring is Germany's rushed closing of its nuclear power plants. Now with the war in Ukraine, Germany, which is among the wealthiest nations, faces an energy crisis. Finally, after a long struggle, it decided to reconsider closing[37] its nuclear plants.

> EUROPE'S NAIVE RELIANCE ON RUSSIAN ENERGY IS ALSO PROBLEMATIC, DESPITE THE LATEST EFFORTS TO DISCONNECT FROM THE CLUTCHES OF PUTIN

Yet, energy poverty is not a new thing in the EU. Rising prices cause an increase in people unable to afford utility bills[38], though in recent years this number is decreasing (not factoring in the recent energy crisis with Russia)[39]. Not to mention what happens in more poverty-stricken places, such as parts of Africa where people cannot afford clean energy and due to rising prices, they burn waste in order not to freeze. The smoke billowing from these fires is, needless to say, extremely polluting – not only to the environment, but

[36] The Danish Environmental Protection Agency (2018) *Life Cycle Assessment of Grocery Carrier Bags*. Available [online]: https://www2.mst.dk/Udgiv/publications/2018/02/978-87-93614-73-4.pdf

[37] Financial Times (2022) *Germany Rethinks Nuclear Power Exit Due to Threat of Winter Energy Crunch*. Available [online]: https://www.ft.com/content/cc422ece-92b3-41fa-a05c-900270bfe824

[38] European Commission (2020) *Arrears on Utility Bills*. Available [online]: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200120-1

[39] Ibid.

> THE GREENEST COMPANIES ARE USUALLY THE LARGEST MULTINATIONALS – SUCH AS MICROSOFT AND APPLE

also to people[40], causing a large number of deaths.

Europe's naive reliance on Russian energy is also problematic, despite the latest efforts to disconnect from the clutches of Putin. Ever since the last crises in Ukraine in 2014, insufficient efforts were made. European countries had eight years and failed to be independent energy wise. Now, even the most optimistic transition period is not enough, and Russia can further back the EU into a corner of its own creation.

Landlocked countries with no access to direct tanker shipments are left stranded, giving the Hungarian government (already overly friendly with Vladimir Putin) more cause to strengthen its narrative against the European Union, make more deals with Russia, and to do Putin's bidding of weakening the EU.

The European Union is already vulnerable. Many energy-rich countries are not exactly the champions of liberty and dealing with them is an out of the pan into the fire kind of situation. In the area of waste management, China has already caused great disruptions by placing a ban on import waste[41].

Offshore drilling and shale gas might be a solution for the EU's energy independence, but it is not a green way forward. Dealing with authoritarian nations[42] will only discredit the European Union's effort in democratic values. Environmental causes also would not be helped globally, as a lot of energy-rich yet not-so-democratic countries are polluters[43].

On paper, the EU Green Deal is prepared for sustainable energy and energy independence – for example, by decarbonizing the gas sector. But the question remains if it can be achieved in time without damages to vulnerable people, and what will happen until then?

Although innovation is part of the Green Deal package the European Union should continue to lay a great emphasis on it. Still,

[40] https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health

[41] Yoshida, A. (2022) "China's ban of imported recyclable waste and its impact on the waste plastic recycling industry in China and Taiwan", [in]: *Journal of Material Cycles and Waste Management*, Vol. 24, pp. 73–82.2

[42] Staden, C. (2022) "Green Energy's Dirty Secret: Its Hunger for African Resources", [in]: *Foreign Policy*. Available [online]: https://foreignpolicy.com/2022/06/30/africa-congo-drc-ev-electric-vehicles-batteries-green-energy-minerals-metals-mining-resources-colonialism-human-rights-development-china/?utm_source=pocket_mylist

[43] Neumayer, E. (2002) "Do Democracies Exhibit Stronger International Environmental Commitment? A Cross-Country Analysis", [in]: *Journal of Peace Research*, Vol. 39(2), pp. 139–164. Available [online]: http://www.jstor.org/stable/1555-296

it is impossible to predict future technologies, their environmental impact, and energy needs (think of Bitcoin for instance)[44] of new tech, and what new solutions upcoming innovations will produce to the problem of climate change. Innovation is mostly driven by the private sector[45], and the EU should put more focus on cooperating with them, and not only regulating their activities.

The greenest companies are usually the largest multinationals – such as Microsoft and Apple[46], and many are not headquartered in the EU. It is not funding nor grants, but leeway, that private solutions need most. A balance should be found so as not to do damage or discriminate positively or negatively. Too much freedom in environmental issues may cause bad actors (such as Russia or China) to exploit it as a weakness of the EU.

Regulations, however, are also not necessarily the solution. For instance, Volkswagen famously lied[47] about its emissions, and ExxonMobil[48] even tried to influence the Green Deal. The answer to this issue could be Special Economic Zones, set up to serve as sandboxes where innovation is driven by a freer environment and – should it not go well – it is contained. Freedom would not cause the chaos that is feared by many. Corporations can still lie despite regulations, and honesty[49] is an excellent way to stand out.

> DESPITE CRITICISM, THE EUROPEAN GREEN DEAL IS A HISTORIC STEP FORWARD TOWARDS A BETTER AND SUSTAINABLE FUTURE

CONCLUSIONS: THE BEST IS YET TO COME

Despite criticism, the European Green Deal is a historic step forward towards a better and sustainable future. It was the best possible policy in the current political, global, and economic climate. Some might say it is not ambitious, while others say that it is overly ambitious – to the point

[44] Hinsdale, J. (2022) *Cryptocurrency's Dirty Secret: Energy Consumption.* Available [online]: https://news.climate.columbia.edu/2022/05/04/cryptocurrency-energy/

[45] https://www.weforum.org/agenda/2022/03/should-government-leave-innovation-to-the-private-sector/

[46] Bonta, E. and L. Thornton (2022) "America's Top 10 Companies for Environmental Performance in 2022", [in]: *Just Capital.* Available [online]: https://justcapital.com/news/earth-day-2022-top-companies-for-the-environment/

[47] Hotten, R. (2015) "Volkswagen: The Scandal Explained", [in]: *BBC.* Available [online]: https://www.bbc.com/news/business-34324772

[48] https://www.theguardian.com/business/2020/mar/06/exxonmobil-tried-to-get-european-green-deal-watered-down-claims-climate-lobbying-watchdog

[49] https://medium.com/ecajournal/honesty-as-a-value-that-matters-for-business-1fbd39d8c42d

where it cannot be realized. Obviously, compromises had to be made otherwise the Deal could not have been passed in as diverse a place as the EU with different interests, ideologies, and opinions. It is what it is.

However, for it to succeed, it yet remains to be seen how policies will be implemented. There are also a lot of hurdles in front of the green policies that need to be overcome. As indicated above, there are several broad categories that could make or break the Green Deal – alarmism, populism, communication, consequences, and innovation. It is, therefore, important that the conversation about climate change is done in a factual, calm, and solution-based manner, rather than rooted in scaremongering. The latter might lead people to lose trust in the process, become passive or scared – which populists may then exploit.

Populism comes in many shapes and forms – left, right, liberal, and green. It builds on the *us and them* mentality, rides on the fear of people, promises protection and undeliverable goals. It is okay that people have anxieties, but it is resilience that should be built upon, rather than a political career. It is important to recognize false prophets and quick-fix policies. People should, therefore, prepare for the *blood, toil, tears, and sweat* rather than in the *heaven on earth* tomorrow.

All this is futile if the European Union is not communicating effectively. Good policies might exist, but if nobody knows about them, it will not matter. Hoping they will speak for themselves is just wishful thinking, Eurosceptics will fill the gap in communication and hijack it.

Feel-good policies are also a big hurdle due to unintended consequences. Optics are not enough, and their full-blown effects must be considered. Usually, more research is needed. Rushed policies might at first soothe people and pose as actions, but they will not solve environmental issues – more likely, they will make matters worse.

Innovation will always be a factor one cannot anticipate. Nonetheless, it can still be driven by a lenient regulatory environment. Trust and honesty are gaining importance on the market, and over-regulation will lead to lying and avoidance. Special economic zones could pose as a good solution.

There might be other, unforeseen hurdles, which the Green Deal has to deal with, which should also be factored in. There is a long way to go, with many unknowns. Yet, it is a road all of us are taking for the common benefit. The most important thing is to work together in bringing it to success and create a win-win situation for both the people and the environment.

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The Importance of Iberian Energy to the Future of European Union and Central and Eastern Europe

* RICARDO SILVESTRE

The attack at the beginning of 2022 by the Russian Federation on Ukraine, a rightful member of the international community and an aspiring adherent to the European Union (EU), can be examined with the help of a theory in international relations called 'neorealism'. This theory argues that power dynamics between nation-states are often characterized by competition and conflict, disregarding the potential for collaboration, on a zero-sum logic. These dynamics become even more complicated when there are economic interdependences, with one nation holding other ones hostage due to the need of goods essential to the less powerful ones. This phenomenon applies especially to energy dependence. These kinds of imbalances create what is called a 'security dilemma'. The actions of the Kremlin in Ukraine can, in part, be understood by a calculation made by the Russian leaders that other European countries would not oppose the said actions due to their need to access Russian energy. However, this creates an opportunity for the European Union to change this *status quo*, investing in ways to end the dependence, and, with that, attenuating the security dilemma.

There are historical precedents for this kind of progress, for example, the development of energy efficiency after the Yom Kippur war. The REPowerEU Plan, a *Joint European Action for More Affordable, Secure, and Sustainable Energy*, is a set of initiatives by the European Union to diversify the energy mix, and sources, and to reduce dependence on Russian gas by two-thirds before the end of 2022. Apart from increasing energy acquisition from sources that are outside the European continent, there is also *in-house* potential, which can be explored by investing in infrastructures to gather (renewables) and receive (gas) energy, and to create a more extensive energy network between member states, including the ones in the Central and Eastern part of the EU.

> APART FROM INCREASING ENERGY ACQUISITION FROM SOURCES THAT ARE OUTSIDE THE EUROPEAN CONTINENT, THERE IS ALSO *IN-HOUSE* POTENTIAL

The Iberian Peninsula has been, for a long time, considered to be an energy island due to the reduced connection to the western part of the continent. Spain and Portugal have enormous potential in helping relieve some of the pressure felt in the rest of the European Union due to the need for energy. This capacity can happen by increasing their green energy development, while assuring the entry of transitional energy to the continent, until the EU can have net-zero economies and energy independence.

ENERGY AND THE SECURITY DILEMMA

The European Union's energy policy, as read in Article 194 of the Treaty of Lisbon, has two important missions: to *"a) ensure the functioning of the energy market"*, and

> THE IBERIAN PENINSULA HAS BEEN, FOR A LONG TIME, CONSIDERED TO BE AN ENERGY ISLAND DUE TO THE REDUCED CONNECTION TO THE WESTERN PART OF THE CONTINENT

"*b) ensure security of energy supply in the Union*"[1]. To achieve these missions there is a need to create the conditions for accessing the energy markets, safeguard the proper functioning of the industry, and ensure the comfort of citizens in their daily lives, while striving to generate economic growth. The proper functioning of a European energy market depends, among other things, on solidarity between member states, sharing of supply solutions, increased energy transit, and access to reserves.

Still, as the European Union stands at this moment in time, it will continue to depend on external suppliers. This situation became painfully obvious during the Ukraine crisis of 2022 with the unprovoked and barbaric attack by the Russian Federation on that country. Even before that, Russia had never been a dependable energy supplier. Moscow has often proved that it can easily cut the supply to countries on the western part of its borders by ordering companies under state control to reduce, or cut, the flow of gas. Interruptions in the flow of energy happened to countries in Eastern Europe[2], affecting the rest of the continent[3], being particularly important as eleven of the member states of the EU have a direct or indirect dependency with the energy giant to the east – Bulgaria, the Czech Republic, Estonia, Lithuania, Hungary, Austria, Poland, Romania, Slovenia, Slovakia, and Finland[4].

The theory of economic interdependence argues that a deepening of those relations between states exists when there are reciprocal gains. However, asymmetries in the interdependence can cause problems regarding the defense of the state. Yet, this is dependent on the stance of the state(s), which can be *offensive* or *defensive*. In an offensive stance, also characterized by *offensive realism*, a more powerful state seeks to gain advantages over others, while preventing its own loss of power – a zero-sum scenario. In fact, one of the goals of offensive realism is to have hegemony in a certain sphere of influence – something that Moscow tried to build, both during the Soviet

[1] Treaty of Lisbon. Amending the Treaty on European Union and the Treaty Establishing the European Community – Article 176A, p. 90. Available [online]: http://publications.europa.eu/resource/cellar/688a7a98z-3110-4ffe-a6b3-8972d8445325.0007.01/DOC_19

[2] Cable News Network (CNN) (2008) "Russia, Ukraine Deal Averts Gas Crisis", [in]: *CNN*, February 12. Available [online]: http://edition.cnn.com/2008/WORLD/europe/02/12/putin.russia/index.html

[3] BBC (2006) "Ukraine 'Stealing Europe's Gas'", [in]: *BBC*, January 2. Available [online]: http://news.bbc.co.uk/2/hi/europe/4574630.stm

[4] Ellyatt, H. (2019) "Europe Is Fast-Becoming a Natural Gas Battleground for Russia and the US", [in]: *Yahoo!finance*, January 2019. Available [online]: https://finance.yahoo.com/news/europe-fast-becoming-natural-gas-104400706.html

Union times, and after becoming the Russian Federation. The reverse also applies.

Less dependence of a state, or a union of states (like in the case of the EU) on a single supplier, leads to a greater negotiating capacity, balance of power, less dependency, and increased security. Since Adam Smith, it has been argued that there exist positive effects of economic interdependence[5]. Theoretically, this type of interdependence leads to the avoidance of military conflicts. However, an increase in the offensive stance can cause instability and an *arms* race for security and sovereignty[6].

In Marxist and neo-Marxist theories, interdependence is also seen as a source of conflict, since power asymmetries will lead to the exploitation of the economically weak by the strong. This abuse also causes a delay in the growth of the frail, while increasing the economic strength and bargaining power of the strong[7]. The way the contemporaneous international system is organized, great powers resort to offensive actions to ensure their security[8], and when states have no way of knowing what the real intentions of other states are, survival is the main objective[9]. Hence, offensive realism leads to the creation of a *security dilemma*. In Robert Jervis' "four worlds theory", offensive actions have an advantage over defensive ones, and an offensive stance is the best strategy to gain advantages[10], causing a search for power maximization rather than security maximization[11].

> RUSSIA HAD NEVER BEEN A DEPENDABLE ENERGY SUPPLIER

The security dilemma can also extend to conflicts in the political and economic arena[12]. Dependence on transaction of goods can lead to the imposition of embargoes or blockades, or, at the limit, irregular warfare[13]. One of the best examples of the use of energy in the logic of offensive realism came in October 1973, when the Organization of Petroleum Exporting Countries enacted a ten-day embargo following the start of the Yom Kippur war. That fall, Saudi Arabia, Iran, Iraq, the United Arab Emirates, Kuwait, and Qatar decided to raise the price of the barrel of oil, while announcing production cuts. The embargo served

[5] Graafland, J. and T.R. Wells (2020) "In Adam Smith's Own Words: The Role of Virtues in the Relationship Between Free Market Economies and Societal Flourishing, A Semantic Net- work Data-Mining Approach", [in]: *Journal of Business Ethics*, Vol. 172, pp. 31-42. Available [online]: https://link.springer.com/content/pdf/10.1007/s10551-020-04521-5.pdf

[6] Polachek, S. (1980) "Conflict and Trade", [in]: *Journal of Conflict Resolution*, Vol. 24(1), pp. 55-78.

[7] Lenine, V. I. (1916) *Imperialism, the Highest Stage of Capitalism*. Available [online]: https://www.marxists.org/archive/lenin/works/1916/imp-hsc

[8] Jervis, R. (1978) "Cooperation under the Security Dilemma", [in]: *World Politics*, Vol. 30(2), pp. 167-214.

[9] Mearsheimer, J. J. (2001) *The Tragedy of Great Power Politics*, New York: W.W. Norton & Company.

[10] Ibid.

[11] Baylis, J., Smith, S., and P. Owens (2019) *The Globalization of World Politics. An Introduction to International Relations. Eighth Edition*, Oxford: Oxford University Press.

[12] Krickovic, A. (2015) "When Interdependence Produces Conflict: EU-Russia Energy Relations as a Security Dilemma", [in]: *Contemporary Security Police*, Vol. 36(1), pp. 3-26. See also: Mearshimer, J. J. (1994) "The False Promise of International Institutions", [in] *International Security*, Vol. 19(3), pp. 5-49.

[13] Copeland, D. (1996) "Economic Interdependence and War: A Theory of Trade Expectations", [in]: *International Security*, Vol. 20(4), pp. 5-41.

mainly to punish *Israel-friendly* countries, and had the biggest effect in the United States, the United Kingdom, Canada, Japan, and the Netherlands[14]. This kind of disturbance was also seen during the energy crises in Europe of 2006 and 2008, as described above, when Moscow reduced, or suspended, natural gas exports, placing Europe in a fragile situation. For the Russian Federation, the use of natural resources as a form of offensive realism is justified to maintain superiority in its *sphere of influence*, or, in other words, the *near abroad*.

In fact, Russia's energy policy has been shaped by geostrategic concerns that are reflected in price manipulation for developing countries, the control of transport infrastructure (such as gas and oil pipelines), and disruption in supply as a form of political pressure[15]. Gazprom, the giant energy exporter from Russia, being under the control of the Kremlin, already blocked the supply of gas to Poland, Bulgaria, Finland, the Netherlands, and two other important markets (Denmark and Germany)[16], as retaliation for EU support of Ukraine.

THE PROMISE(S) OF REPOWEREU

The Foreign Affairs Council, responsible for the EU external action (foreign policy, defense/security, trade, development cooperation, and humanitarian aid) adopted in July 2015 the European Union Energy Diplomacy Action Plan[17], consisting of four priorities: facilitating the Council's regular discussion of strategies on energy issues; establishing dialogues with producing and transit countries; achieving joint positions in the multilateral institutions of the EU; and strengthening the capacity of the EU to speak "*with one voice*" on issues related to energy needs[18].

> HERE EXIST POSITIVE EFFECTS OF ECONOMIC INTERDEPENDENCE

In one passage in the document, the Action Plan includes an important, and specific, goal: "*Conditions permitting, the EU could also consider reframing the energy relationship with Russia*".[19] This kind of wording is a clear sign of the awareness of the need for solutions that would allow a decrease in the dependence on energy from Moscow. Hence, after the attack on Ukraine, a set of objectives with a packet of measures was ready to be advanced by the European Commission, and presented as a deterrent measure, but also to speed up the timetable for the EU to become more independent from Russian fossil fuels by 2030.

[14] Ditté, P. and P. Roell (2006) *Past Oil Price Shocks: Political Background and Economic Impact – Evidence from Three Cases*. Available [online]: https://css.ethz.ch/en/services/digital-library/publications/publication.html/20499

[15] Korteweg, R. (2018) *Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia*. Available [online]:https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf

[16] https://www.thenationalnews.com/world/europe/2022/05/31/four-point-european-energy-plan-to-escape-reliance-on-russian/

[17] Council of the European Union (2015) *Council Conclusions on Energy Diplomacy*. Available [online]: https://data.consilium.europa.eu/doc/document/ST-10995-2015-INIT/en/pdf

[18] Ibid., p. 3.

[19] Ibid., p. 5.

> WHEN STATES HAVE NO WAY OF KNOWING WHAT THE REAL INTENTIONS OF OTHER STATES ARE, SURVIVAL IS THE MAIN OBJECTIVE

The REPowerEU Plan, a *Joint European Action for More Affordable, Secure, and Sustainable Energy*, was introduced in March 2022, outlining a set of initiatives to diversify gas supplies, speed up the roll-out of renewable gases, and replace gas in heating and power generation. The short-term objective is to "*reduce EU demand for Russian gas by two thirds before the end of the year*"[20]. This phasing out of the dependence will be based on the following pillars: diversifying gas supplies via higher imports of liquefied natural gas from non-Russian suppliers paired with an increase in the imports and production of biomethane and renewable hydrogen, a transformation of the way that fossil fuels are used in habitation, industry, and power systems; and by "*boosting energy efficiency, increasing renewables and electrification, and addressing infrastructure bottlenecks*"[21].

Moreover, REPowerEU was introduced with an important data point, as 85% of Europeans believe that the EU should reduce its dependency on Russian gas and oil, as soon as possible, to help Ukraine[22]. The measures aim to increase energy savings, and result in a diversification of energy suppliers and an accelerated roll-out of renewable energy for habitations, industry, and power generation[23].

The European Commission proposed increasing the target for renewable energy from 40% to 45% by 2030, bringing the total renewable energy generation capacity to 1236 GW – compared to the 1067 GW foreseen under the *Fit for 55* for the same time frame[24]. The measures proposed, to come into force through future legislation, aim to increase the number of wind and solar farms, the utilization of solar panels, and 'go-to' areas in member state regions that have a low environmental risk.

There are plans to "*shorten and simplify*" the permitting processes with the creation of a digital mapping tool for energy, industry, and infrastructures by region[25]. Likewise, special attention will be given to

[20] European Commission (2022) *Press Release: REPowerEU: Joint European Action for More Affordable, Secure, and Sustainable Energy*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_1511

[21] Ibid.

[22] European Commission (2022) *Press Release: Eurobarometer: Europeans Approve EU's Response to the War in Ukraine*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_2784

[23] European Commission (2022) *REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast Forward the Green Transition*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

[24] European Council, Council of the European Union (2022) *Fit for 55*. Available [online]: https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/

[25] https://joint-research-centre.ec.europa.eu/energy-and-industry-geography-lab_en

regulatory incentives for the creation of innovative technologies, and the EU Solar Energy Strategy aims to "*ensure that solar energy achieves its full potential in helping to meet the European Green Deal's climate [and] energy targets*", with a roll-out of photovoltaic energy to bring online over 320 GW of solar photovoltaic by 2025[26].

Equally, there is a goal to produce 10 million tons of domestic renewable hydrogen, and 10 million tons of renewable hydrogen imports by 2030, included in the Hydrogen Accelerator strategy[27]. Also included is the financing of renewable hydrogen projects under Horizon Europe "swift approval", and of projects included in the Important Projects of Common European Interest (PICs) – the development of technical hydrogen standards for production, infrastructure, and end-use appliances, and the establishment of a Global European Hydrogen Facility and a Green Hydrogen Partnership to "*incentivize European and global renewable hydrogen production and trade*"[28].

To fast-track the hydrogen market there is a need for a regulatory framework. The European Commission is working on acts that will provide regulations to produce renewable hydrogen, with an additional funding of EUR 200 million for research[29]. All these initiatives come after the already approved NextGenEU Fund, a EUR 750 billion package, with 37% of the money to projects that are part of the European Green Deal, which includes the "*launch a clean hydrogen economy in Europe*" project[30]. This type of hydrogen, produced from energy from renewable sources, is considered to be the future of energy[31] and a way to invest in sustainable growth. The European Commission created the European Clean Hydrogen Alliance[32], with investments around EUR 430 billion by 2030.

Equally, the EU External Energy Strategy[33] exists to facilitate energy diversification and creation of long-term commercial relations with suppliers, reinforcing the European Union's commitment to a green and just energy transition that includes hydrogen. This strategy already includes the pledge to support Ukraine, Moldova, the Western Balkans, and Eastern Partnership countries[34].

Albeit accounting for the importance of investment in renewable energy sources and non-polluting hydrogen, the European Commission is aware of the time horizon for those solutions to have a significant impact in EU energy security, and with that, an effect on the security dilemma. Therefore, some of the focus is centered around what

[26] http://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13338-EU-solar-energy-strategy_en

[27] https://ec.europa.eu/info/news/commission-launches-consultation-regulatory-framework-renewable-hydrogen-2022-may-20_en

[28] European Commission (2022) *Press Release: REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition.* Available [online]: https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_22_3131/IP_22_3131_EN.pdf

[29] Ibid.

[30] European Commission (2020) *Com: Europe's moment: Repair and Prepare for the Next Generation*. Available [online]: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0456&from=EN

[31] https://liberalforum.eu/wp-content/uploads/2021/10/Research-Paper-Clean-Hydrogen-and-the-Future-of-Energy.pdf

[32] https://ec.europa.eu/growth/industry/strategy/industrial-alliances/european-clean-hydrogen-alliance_en

[33] European Commission (2022) *EU External Energy Engagement in a Changing World*. Available [online]: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022JC0023&from=EN

[34] European Commission (2022) *REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast Forward the Green Transition.* Available [online]: https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_22_3131/IP_22_3131_EN.pdf

> RUSSIA'S ENERGY POLICY HAS BEEN SHAPED BY GEO-STRATEGIC CONCERNS THAT ARE REFLECTED IN PRICE MANIPULATION FOR DEVELOPING COUNTRIES, THE CONTROL OF TRANSPORT INFRASTRUCTURE (SUCH AS GAS AND OIL PIPELINES), AND DISRUPTION IN SUPPLY AS A FORM OF POLITICAL PRESSURE

the *transitional sources of energy* are, gas being an obvious one. Since most of the gas to the EU is imported from Russia, there is a need to change sources, acquiring this energy from more reliant providers and allied nations. One of the solutions at hand is the acquisition of more liquified natural gas.

LIQUIFIED NATURAL GAS (LNG) AS A TRANSITION ENERGY SOURCE

The EU is collaborating with international partners to secure record levels of LNG imports and higher gas delivery[35]. The EU Energy Platform[36] will enable common purchases of gas and LNG by *pooling demand*, increasing the efficiency of infrastructures, and coordinating the outreach to suppliers outside Europe. However, regarding *pooling* demand, there are legitimate questions about the efficacy and efficiency of joint purchases, and there is a need to see the plan in action for a proper evaluation. This fits in the aim of ensuring "cooperation in areas where it is more effective to act in a coordinated way at the EU level rather than at a national level".[37] This will allow the European Commission to negotiate joint contract gas purchases on behalf of the member states that joined the platform.

The Commission will also lead the process of diversification of gas supply through the force of legislation[38]. Even before the Ukraine crisis started by the Russian Federation, the European Commission estimated that by 2023, the EU would increase the demand for gas up to 100 billion cubic meters, with imports growing 20% by 2040[39].

Access to the LNG market has been a long-term objective of the European Commission, which argued in 2020 that "liquefied gas can

[35] Ibid.

[36] http://energy.ec.europa.eu/topics/energy-security/eu-energy-platform_en

[37] Ibid.

[38] European Commission (2022) *Press Release: REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast Forward the Green Transition.* Available [online]: https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_22_3131/IP_22_3131_EN.pdf

[39] European Commission (2019) *Liquefied Natural Gas (LNG) Has the Potential to Help Match EU Gas Needs*. Available [online]: https://ec.europa.eu/energy/sites/ener/files/eu-us_lng_trade_folder.pdf

> TO FAST-TRACK THE HYDROGEN MARKET THERE IS A NEED FOR A REGULATORY FRAMEWORK

significantly contribute to the diversification of gas supply and thus considerably increase energy security" and assumed as one of its missions "to ensure that all member states have access to liquid gas markets".[40] However, this security is dependent on what suppliers make the EU market. There are differences between dealing with countries like the United States or Canada, or, for example, Qatar, which recently suffered a blockade from neighboring countries[41]. The access to this form of energy is more facilitated to southern and western European countries, due to access to LNG by sea, unlike those who are land-locked and depend on external sources. In the assessment of the European Commission, there is a "significant capacity" to import more LNG, sufficient to guarantee 45% of total gas consumption[42]. This means that more LNG hubs are needed in the southeast, central-eastern Europe, and Baltic countries.

Projects of Common Interest (PICs) incorporate investments in infrastructures, including new terminals and gas pipelines, in a way that creates conditions for a more extensive energy network between member states. Projects led by the EU include the extension of the Swinoujscie terminal in Poland, the new Brunsbüttel and Wilhelmshaven terminals in Germany[43], and investments in the terminals from Krk in Croatia, Gothenburg in Sweden, Shannon in Ireland, and Vasilikos Bay in Cyprus[44]. The port of Swinoujscie, in Poland, is an example of success when it comes to reducing Russian energy dependence, and in that way attenuating the security dilemma, both for the country and for the region.

After the 2009 energy crisis, the terminal provides the entry of LNG and the transit of gas to Baltic countries, Slovakia, the Czech Republic, and Ukraine. When interviewed by the *New York Times* in 2019 about the importance of this port, the then president of PGNiG, the Polish State energy company, Piotr Wozniak, mentioned something that can be easily transferred to the rest of the EU after the Ukraine attack: "*The strategy of the company is just to forget about Eastern suppliers and especially about Gazprom (...) If I pay [for LNG] to Americans, I pay to my NATO allies*"[45].

[40] European Commission (2022) *Liquefied Natural Gas*. Available [online]: https://energy.ec.europa.eu/topics/oil-gas-and-coal/liquefied-natural-gas_en?redir=1

[41] Ramani, S. (2021) "The Qatar Blockade Is Over, but the Gulf Crisis Lives On", [in] *Foreign Policy*. Available [online]: https://foreignpolicy.com/2021/01/27/qatar-blockade-gcc-divisions-turkey-libya-palestine/

[42] European Commission (2022) *Liquefied Natural Gas*. Available [online]: https://energy.ec.europa.eu/topics/oil-gas-and-coal/liquefied-natural-gas_en?redir=1

[43] European Commission (2019) *Liquefied Natural Gas (LNG) Has the Potential to Help Match EU Gas Needs*. Available [online]: https://ec.europa.eu/energy/sites/ener/files/eu-us_lng_trade_folder.pdf

[44] European Commission (2019) *Press Release: EU-U.S. Joint Statement: Liquefied Natural Gas (LNG) imports from the U.S. continue to rise, up by 181%*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1531

[45] Reed, S. (2019) "Burned by Russia, Poland Turns to U.S. for Natural Gas and Energy Security", [in] *The New York Times*. Available [online]: https://www.nytimes.com/2019/02/26/business/poland-gas-lng-russia-usa.html

> SPAIN IS MAKING A CONCERTED EFFORT TO INCREASE THE SHARE OF RENEWABLES IN ITS ENERGY MIX

If the future of energy availability, via LNG, has been a concern to the European Union and to its member states for some time, it's even more pressing now. Particularly in the Central and Eastern part of Europe, a normal (expected) delay in the commission, building, and making operational of entry ports and distribution networks, calls for solutions that can alleviate the pressure on western European countries derived from a decrease of energy imports from Russia. One possible solution is the increase of energy transport not in an east-west direction, but in a west-east, and from the Iberian Peninsula to the western part of Europe. Before mentioning how can that be done, and the benefits for the EU, we need to focus on the two constituents of the peninsula.

THE REALITY AND THE OBJECTIVES OF SPAIN AND PORTUGAL

In Spain, one of the 2050 objectives to reach climate neutrality is to have 100% renewable energy in the electricity mix, and 97% renewable energy in the total energy mix[46]. This will be obtained with transformative investments in solar and wind, energy efficiency, electrification, and clean hydrogen. For 2030 the objective is to achieve a 42% share of renewables in energy end-use, and a 74% share of renewables in electricity generation[47]. The Spanish government presented a set of initiatives to achieve the 2030 objectives including a *Hydrogen Roadmap*[48], and the *Offshore Wind Roadmap and Marine Energy*[49]. The contribution of wind energy is substantial for electricity generation, with a share of 23%, and a production of around 60.5 terawatt hours[50].

Hydropower is also an important source of electricity with a share of 28%[51]. Spain is making a concerted effort to increase the share of renewables in its energy mix, which has grown from 24% in 2009 to 38% in 2019, climbing to 42% of electricity from renewables in 2022, and with the goal of reaching 74% in 2030[52]. As for the gas market, the Spanish national transmission system operator, Enagas, is opening new slots to LNG tankers to unload gas into terminals[53], with Spain now having six LNG ports. The amount of gas regasification

[46] International Energy Agency (2021) *Spain 2021, Energy Policy Review*. Available [online]: https://www.iea.org/reports/spain-2021

[47] Ibid.

[48] https://ec.europa.eu/info/sites/default/files/energy_climate_change_environment/events/presentations/02.03.02_mf34_presentation-spain-hydrogen_roadmap-cabo.pdf

[49] Spanish Government. Ministry for the Ecological Transition and the Demographic (2022) *Roadmap Offshore Wind and Marine Energy in Spain.* Available [online]: https://www.miteco.gob.es/es/ministerio/planes-estrategias/desarrollo-eolica-marina-energias/202203_roadmapoffshoreespain_en_tcm30-538999.pdf

[50] https://www.statista.com/statistics/1003792/total-electricity-generation-in-spain/

[51] https://www.statista.com/statistics/1007877/share-of-electricity-generation-in-spain/

[52] Red Eléctrica (REE) (2022) *Electrical Energy Balance*. Available [online]: https://www.ree.es/en/datos/balance

[53] https://www.reuters.com/business/energy/spain-portugal-urge-energy-coordination-russia-supply-fears-rise-2022-02-24/

accounts for 37% of the European Union[54], however, conditioned by the limited connections to the French gas network, which will be tackled ahead.

There is also the entry of natural gas from Africa, with the Maghreb-Europe Gas Pipeline and the Medgaz pipeline. The imports of natural gas from Algeria reached 10 billion cubic meters per year in 2021[55], and the Medgaz pipeline is expected to reach 30 million cubic meters per day, following a recent expansion[56]. However, it is important to account for local dynamics in North Africa and the political turmoil – like the one seen in 2022, when a cessation of diplomatic relations between Marocco and Algeria caused a drop in gas distribution[57]. These dynamics can lead to disruptions of the flow towards the Iberian Peninsula, as the Maghreb-Europe pipeline also serves Portugal via Spain.

Spain is also working on a *Renewable Hydrogen Roadmap*[58]. The target for 2030 is to have a 25% consumption of industrial hydrogen from renewable sources, with the installation of 4GW electrolyzers and a network of 100 renewable hydrogen stations and green hydrogen-powered handling machinery at five main ports and airports. Moreover, there is also a project by Enagás (an energy company that owns and operates the nation's gas grid) of installing a 32 MW electrolyzer, powered by a 150 MW photovoltaic plant. There are also plans to progressively move from 'grey hydrogen' (from polluting sources, but carbon captured and stored) to clean hydrogen by 2024.

> PORTUGAL HAS A HISTORY OF UNDERUSING ITS RESOURCES, BOTH DUE TO (A LACK OF) POLITICAL VISION, BUT ALSO A LACK OF SUFFICIENT INVESTMENTS IN RESEARCH AND DEVELOPMENT, AND INFRASTRUCTURES

Portugal has a history of underusing its resources, both due to (a lack of) political vision, but also a lack of sufficient investments in research and development, and infrastructures. However, it was not sustainable for an economy that aims to

[54] https://www.cnbc.com/2022/05/24/spain-paints-itself-as-the-answer-to-europes-russian-energy-problem.html

[55] Le Monde (2021) "L'Algérie ne passera plus par le Maroc pour exporter son gaz en Espagne", [in] *Le Monde*. Available [online]: https://www.lemonde.fr/afrique/article/2021/10/28/l-algerie-ne-passera-plus-par-le-maroc-pour-exporter-son-gaz-en-espagne_6100181_3212.html [in French]

[56] https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/012822-as-europe-seeks-alternatives-to-russian-gas-algeria-has-pipeline-capacity-to-spare

[57] https://www.reuters.com/world/africa/algeria-end-gas-supplies-morocco-supply-spain-directly-sources-2021-10-25/

[58] Spanish Ministry for the Ecological Transition and the Demographic (2020).

be competitive. In the beginning of 2020, a stimulus package of EUR 9.2 billion was introduced to modernize the country, which included solar photovoltaic projects and financial programs for energy efficiency measures in buildings[59]. The following year, the Portuguese Recovery and Resilience Plan[60] (an offshoot of the Next Generation EU Fund)[61], included more capital for projects in energy transition – part of the *climate change pillar*.

Furthermore, Portugal has increased its levels of electrification, mostly with hydropower and wind generation, with renewables covering 54% of total generation[62]. In 2021, gross annual electricity production from renewables reached nearly 32.8 gigawatts per hour[63]. Still, the country is set on a path for even more ambitious goals. The Portuguese National Energy and Climate Plan aims to reduce external energy dependency to below 65% by 2030, and the *Roadmap for Carbon Neutrality 2050* to below 19% by 2050[64].

Apart from the very advantageous geographical position to capture energy from renewable sources, Portugal, also has direct access to the Atlantic Ocean, and it is a main entry point for energy by being at the center of inter and intra-oceanic routes, with connections between Europe, Asia, Africa, and the Americas. In addition, the port of Sines (a deep-water port, located on Portugal's south-central coast, 58 nautical miles from Lisbon), is a gateway for gas to the EU from Nigeria, Trinidad and Tobago, Qatar, Australia, and the United States. Portugal aims to improve the efficiency of LNG offloading in Sines, increasing storage and building a third pipeline to Spain, increasing the capacity to transit gas from 70GW/day to 150GW/day[65].

Another national priority is the positioning of Portugal as one of the key players in the European Union for clean hydrogen production, exactly because of the easy access to renewable sources. The National Hydrogen Strategy calls for ambitious goals of having 10-15% clean hydrogen injection into the natural gas network, 2-5% consumption in the industrial sector, 1-5% in land transportation, 3-5% in maritime transportation, and 1.5-2% in final energy consumption by 2030[66].

THE ENERGETIC POTENTIAL OF THE IBERIAN PENINSULA AND THE INVESTMENTS NEEDED

In the REPowerEU plan, special attention is given to the importance of the Trans-European Networks for Energy in a way to create a "*resilient and interconnected EU gas*

[59] International Energy Agency (2021) *Portugal 2021, Energy Policy Review*. Available [online]: https://www.iea.org/reports/portugal-2021

[60] Portuguese Government (2022) *Recovery and Resilience Plan (RRP).* Available [online]: https://recuperar-portugal.gov.pt/?lang=en

[61] Silvestre, R., and G.M. Bovenzi (2021) "RDR Next Generation EU: A Southern-Northern Dialogue", [in] *European Liberal Forum Publications,* Policy Brief December. Available [online]: https://liberalforum.eu/wp-content/uploads/2021/12/Policy-Brief_Next-Generation-EU-A-Southern-Northern-Dialogue_final-_compressed-1.pdf

[62] IEA (2021) *Portugal 2021, Energy Policy Review*.

[63] Direção Geral de Energia e Geologia (2021) *Renováveis.* Available [online]: https://www.dgeg.gov.pt/media/5fjpfuk1/dgeg-arr-2021-12_v2.pdf [in Portuguese]

[64] República Portuguesa (2019) *Roteiro para a Neutralidade Carbónica 2050*. Available [online]: https://www.portugal.gov.pt/pt/gc21/comunicacao/documento?i=roteiro-para-a-neutralidade-carbonica-2050- [in Portuguese]

[65] https://www.euractiv.com/section/energy/news/portugal-seeks-to-position-itself-as-europes-new-gateway-for-gas/

[66] Presidência do Conselho de Ministros (2020) *Resolução do Conselho de Ministros n.º 63/2020. Aprova o Plano Nacional do Hidrogénio. XXII Governo Constitucional*. Available [online]: https://files.dre.pt/1s/2020/08/15800/0000700088.pdf [in Portuguese]

> AROUND EUR 10 BILLION WILL BE ADDED TO THE EXISTING PICS IN ORDER TO OVERCOME THE LOSS OF RUSSIAN GAS

infrastructure".[67] An estimated investment of around EUR 10 billion will be added to the existing PICs in order to overcome the loss of Russian gas. Equally, there is a need to speed up the PICs that will adapt the power grid to future energy needs. The European Commission launched a call, with a budget of EUR 800 million[68] for projects in the scope of the work done in the Connecting Europe Facility[69].

In 2018, the European Commission warned that the Iberian Peninsula was, largely, an 'energy island' with an electricity interconnection capacity of 6% – far behind the 15% target set by the Energy Union. Also, regarding natural gas, the Iberian and French markets are interconnected by just two pipelines with an exchange capacity of around 7 billion cubic meters/year[70]. With an increase in energy production with renewable sources, and with multiple entry points for LNG, there is the need for a broader electric interconnection, flowing of natural gas, and, in the future, transport of hydrogen. Positively, the two regional markets have a higher level of connection. The two electricity markets are coupled more than 95% of the time[71].

The interconnection with France yields a total capacity of 2.8 GW, and, during 2021, there was an export of 6.8 TWh to Morocco and France. The installed generation capacity of the Peninsula (including the Balearic Islands) is close to 130 GW, with a maximum capacity of the interconnections of 4.5 GW[72]. These reduced flows of energy call for an increased connectivity. Both prime ministers from Portugal and Spain, as well as the President of the European Commission, in the wake of the Russian attack on Ukraine, stressed the importance of a comprehensive and sustained investment in energy connections from the peninsula to the western part of the EU[73]. Regarding electricity transport, there are three interconnection projects with France, to be concluded before 2030: the 2200 MW submarine cable crossing the Bay of Biscay to connect Gatika and Cubnezais[74]; the Navarra-Landes intercon-

[67] European Commission (2022) *REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast Forward the Green Transition.* Available [online]: https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_22_3131/IP_22_3131_EN.pdf

[68] Ibid.

[69] https://ec.europa.eu/inea/en/connecting-europe-facility

[70] European Commission (2018) *Memo: Integration of the Iberian Peninsula into the Internal Energy Market*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/MEMO_18_4622

[71] https://www.evwind.es/2022/03/31/why-is-the-iberian-peninsula-an-energy-island/85414

[72] Ibid.

[73] https://www.euronews.com/2022/08/12/portugal-and-spain-welcome-scholzs-call-for-gas-pipeline-from-iberia-to-central-europe

[74] Interconexión Eléctrica Francia-España or Electricity Interconnection France-Spain (2022) *The Electricity Interconnection Across the Biscay Gulf*. Available [online]: https://www.inelfe.eu/en/projects/bay-biscay

nection with 1500 MW of capacity; and the 1500 MW Arago-Marsillon interconnection through the Central Pyrenees[75]. Together, this would mean a 5200 MW of capacity by 2030. These projects will help to ease the congestion observed between Spain and France, which has hampered the objective to reach the 15% target determined by the EU by 2030[76].

Regarding gas transport via (the north of) Africa, or by LNG acceptance in Iberian ports (with subsequent regasification), one of the essential infrastructures would be a gas pipeline connecting Sines to Larrau in France, through the Pyrenees[77]. However, there is a need to add that this project, despite the calls presented above, still deals with resistance from the French government, which sows doubt on the future of this endeavor[78]. The projects, supported by the European Union, include the installation of a compressor unit in Cantanhede (Portugal) with a pipeline connecting to Zamora (Spain)[79]. Another important project is the connection between Guitiriz and Zamora and the Andradas gas pipeline, which will allow the transport of gas from the Iberian Peninsula to France[80].

Another Project of Common Interest is the construction of the MidCat (Midi-Catalonia) gas pipeline. Renewed requests are being made to revive the project that has been stopped since 2019, due to French and Spanish energy regulators, who considered it too expensive to invest in one of the MidCat sections, the South Transit Eastern Pyrenees[81]. If made a reality, the MidCat would be connected to another pipeline from Algeria, and it would run from Hostalric (Spain) into France[82].

In the 'opposite direction', meaning towards Portugal, MidCat would allow for future plans of a connection that would run from Barcelona to Sines, via Huelva and Córdoba, linking to mainland Portugal through Badajoz[83]. However, this project, even if approved and fully founded, will take time to build and to get online[84], underlining the urgency of the resolution of problems associated with the construction. To the south of the peninsula, Algeria, Niger, and Nigeria agreed on the construction of the Trans-Saharan Gas Pipeline, transporting 30 billion cubic meters per year. Algeria, Africa's biggest natural gas exporter, has been using the Gaz-Maghreb-Europe to deliver several billion cubic meters per year

[75] European Commission (2020) *Technical Information on Projects of Common Interest*. Available [online]: https://ec.europa.eu/energy/sites/ener/files/technical_document_4th_pci_list.pdf

[76] https://www.iea.org/reports/spain-2021

[77] Eiras, R., Louro, P. and R. Leite (2015) "Programa Segurança Energética. Fundação Luso-Americana. Exportações de GNL dos EUA e África para a Europa: o desafio económico vs o valor da segurança energética", [in] *Research Stream USA Shale Gas 4 Europe*. Policy Paper No. 3, pp. 10-11. [in Portuguese]

[78] https://www.reuters.com/business/energy/frances-macron-says-no-need-new-gas-pipeline-between-spain-france-2022-09-05/

[79] Redes Energéticas Nacionais (2018) *3rd Interconnection between Portugal and Spain*.

[80] European Commission (2018) *Interconnection ES-PT (3rd Interconnection) – 2nd Phase*. Available [online]: http://ec.europa.eu/energy/maps/pci_fiches/pci_5_4_2_en_2017.pdf

[81] Commission de Régulation de l'Energie e Comisión Nacional de los Mercados y la Competencia (2019) *Common Decision of CRE and CNMC concerning the gas interconnection between Spain and France, project of common interest (PCI)*. Available [online]: https://www.cnmc.es/sites/default/files/editor_contenidos/Notas%20de%20prensa/2019/20190122_STEP_ENG.pdf

[82] https://www.euractiv.com/section/energy/news/catalan-leader-confident-gas-pipeline-with-france-will-be-built-this-decade/

[83] Silvestre, R. (2021) "A Importância de Portugal na Independência Energética e Dilema de Segurança da União Europeia", [in] *Nação e Defesa*, No. 158, pp. 7-27. [in Portuguese]

[84] https://www.euractiv.com/section/energy/news/portugal-seeks-to-position-itself-as-europes-new-gateway-for-gas/

to Spain and Portugal[85]. Equally, in the first trip of US President Joe Biden to Europe after the Ukraine attack, a commitment was made to supply an extra 15 billion cubic meters in 2022[86].

The Iberia Peninsula could play a key role in the CEE region due to the time that will take to make the new LNG terminals in Germany (Brunsbüttel and Wilhelmshaven)[87] and a new terminal to be built in Poland (Gdansk)[88] fully operational. This prospect, again, relates to geography, as Portugal and Spain are closer to maritime routes that connect to Africa, the Middle East, and North America, with ports in Sines, Ferrol, Bilbao, Huelva, Cartagena, Valencia, and Barcelona. Currently, the Iberian Peninsula region can import 40 terawatt-hours (TWh) per month but can only consume 30 TWh. The excess gas can then be transported to Europe[89].

CONCLUSIONS

European countries will be affected differently by discontinuing gas imports from Russia. Some member states are not connected to the EU grid (Finland and the Baltic countries) albeit having energy security solutions – for example, via the LNG terminal in Klapeida. In the summer of 2022, the Romanian prime minister stated that the Greece-Bulgaria gas pipeline will enable gas supply to Ukraine and Moldova. As presented above, the Swinoujscie port in Poland ensures the entry of LNG and the transit of gas to the Baltic countries, Slovakia, the Czech Republic.

> A WAY FOR THE EU TO BREAK DECADES' LONG DEPENDENCE ON RUSSIAN ENERGY IS TO SHIFT FROM AN EAST OF THE EU FOCUS AND BET ON THE POTENTIAL OF THE IBERIAN PENINSULA

However, if there is a capability of maintaining and/or reversing the flow of energy (if necessary), it is still an open question. Is it technically possible to have the flow of energy into countries that are currently primarily supplied by Russian gas? If this is something that is a priority for the European Union, it needs to happen quick, with an identification of the technical bottlenecks and how to resolve them. Then, there is the need to have sufficient energy. The purchase of gas, liquified or not, to replenish EU reserves is just the first step. Second, there is the need to distribute it

[85] https://www.reuters.com/business/energy/algeria-niger-nigeria-revive-talks-saharan-gas-pipeline-2022-06-22/

[86] https://www.brusselstimes.com/212690/us-promises-eu-extra-15-billion-cubic-metres-of-gas-this-year

[87] https://www.offshore-energy.biz/germany-to-break-free-from-russian-gas-with-two-lng-terminals/

[88] https://www.reuters.com/business/energy/poland-could-build-second-unit-receive-lng-amid-czech-slovak-interest-2022-05-30/

[89] https://www.bruegel.org/blog-post/can-europe-survive-painlessly-without-russian-gas

across member states. This creates three problems – determining the price at which energy can be bought, and of distribution and operation[90].

Furthermore, there are economic and legal issues: how to manage international energy markets; what the effects will be on poorer countries who also need energy; and what changes regarding consumer behavior by the end-users could happen. Equally, there are political questions. The EU would prefer to act (more) as a block, but there are clear differences in dynamics in various countries with different demands. There is also the need for effective investments to increase renewable energy production capture, grid electrification, and online production of clean hydrogen to be applied where it can bring more benefits: heavy transportation, hard-to-decarbonize industry, and energy storage.

A way for the EU to break decades' long dependence on Russian energy (this can be applied to any illiberal and authoritarian regime, like some in the Middle East or in Asia) is to shift from an east of the EU focus and bet on the potential of the Iberian Peninsula. This region can help decrease the pressure regarding energy needs in the western countries of the European Union, and with that also in member states in the Central and Eastern part. These are some of the benefits of changing from a Eurasian dimension to a an Atlantic one. Equally, the peninsula can contribute to a move from polluting sources to clean ones, associated with high-solar-radiation regions, wind occurrence and strength, and sea-coastline-current energy.

These conditions make the case for investments in energy capture in the Iberian Peninsula and an increase in the connectivity to the rest of the continent. That way, there will be bigger cohesion between member states, an improved resilience, sustainable economic growth, and more environmental protection in the European Union. In addition, and importantly, it will mean the end of a source of financing for the Kremlin that is used for offensive posture, with the threatening of EU nation states and of neighboring countries that want to join the European project.

[90] Ibid.

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Ambitions of Green Deal May Hinder Its Achievement

* RADOVAN ĎURANA

In December 2019, the European Commission presented a set of policies and targets known as the 'European Green Deal'. Already in January 2020, the European Parliament voted in favor of adopting the deal. Subsequently, a number of long-term environmental plans have been adopted and the Fitfor55 package was introduced. The latter is already translating the general objectives into specific changes in legislation.

The Green Deal is an initiative that has – and will have – major economic and redistributive impacts, never before seen in the European Union (EU). Its fulfilment requires not only a complete shake-up of the foundations of the European economy, trillions of dollars of investment, but also the implementation of technological innovations that we have not yet discovered.

”

THE GREEN DEAL IS AN INITIATIVE THAT HAS – AND WILL HAVE – MAJOR ECONOMIC AND REDISTRIBUTIVE IMPACTS, NEVER BEFORE SEEN IN THE EUROPEAN UNION (EU)

Today, however, we know that achieving ambitious emissions targets, well planned in a period of cheap and available energy, is far more difficult to achieve in a period of scarcity and uncertainty. Energy markets have *given a lesson* to European politicians that the managed planning for economic transformation is not at all easy, if not impossible. Economists know that it is impossible to put all the variables into a model and give the right weighting to known risks. Two years ago, few people in Brussels could admit that in 2022 we would be desperate to save every cubic meter of natural gas. The positive enthusiasm and conviction that the EU must be the leader in achieving carbon neutrality did not allow for acknowledging these risks.

Today, however, we are in a different situation. Not that the CO2 emissions of one ton of oil have changed, or that the intensity of the methane greenhouse effect has decreased. What has changed radically is the price and physical availability of electricity and natural gas. Coal-fired power stations are being restarted, which is in stark contrast to the intentions of the Green Deal. The present publication succinctly describes most of the key risks and pitfalls that the Green Deal will be forced to face.

Emissions trading aims to create a market price for emissions, while capping the total volume of emissions. However, the price of permits has risen many times over the last two years, which has understandably been passed on to the price of energy produced by fossil fuels. This raises the question of the appropriateness of this instrument and potential introduction of alternative solutions – whether it is a carbon tax directly, but also, the use of various forms of carbon offsets. The potential of waste and biomass has not yet been fully exploited either.

The essence of the Green Deal lies in limiting the production of cheap fossil energy and replacing it with renewable, albeit increasingly expensive, energy sources. Rising energy prices are thus leaving politicians in a dilemma as to which target to prioritize – the climate objective or the political and consumer objective of cheap and affordable energy. Using Hungary as an example, Márton Schlanger argues that artificially lowering energy prices is difficult to sustain, costly, and creates winners and losers.

This dilemma has become a *trilemma* as a result of the war in Ukraine. It is no longer just about *climate* versus *affordability*, but also about Russia, which has contributed to the rise in energy prices and is benefiting greatly from the recent developments. All politicians in Europe are caught in this bind – above all Germany and a number of countries in Central and Eastern Europe. Using the example of the Czech Republic, Christopher Strong illustrates that the short-term use of high-emission local coal may be the preferred solution to the growth of discontent in society.

COAL-FIRED POWER STATIONS ARE BEING RESTARTED, WHICH IS IN STARK CONTRAST TO THE INTENTIONS OF THE GREEN DEAL

The current situation in the energy market reinforces the demand for member states to be able to decide on the ambition of their emission targets and the form of their achievement. They are in different geographical circumstances which determine the choice of renewable energy sources. There are many pathways to decarbonization, and by describing the example of Slovakia, Martin Vlachynský shows that meeting stringent targets can be achieved by transforming a single steel producing company.

It would be naive to claim that high energy prices are a market failure. On the contrary, they are a textbook manifestation of strong demand and insufficient supply. If there was a shortage of gas, the price of electricity must have risen, since it is determined on the common market by the most expensive flexible generation – which is precisely gas-fired power stations. Once again, the benefits of free international trade have been demonstrated in this critical situation. The lack of gas from Russian pipelines (but also of oil or coal) is being replaced to a relatively large extent by gas imported from tankers from all over the world. However, relying on an endless supply of cheap Russian gas means a current lack of LNG processing capacity. Here, there is great potential for exploiting the capacity of the Iberian Peninsula – as indicated in his article by Ricardo Silvestre. However, he also points out that large and rapid investments will be needed to fully connect them to the continental networks.

This brings us to the key issue of the Green Deal – investment decision-making. Economists prefer technological neutrality, but the emergence of the green taxonomy indirectly decides the chosen technologies. Germany's dependence on Russian gas would have been considerably

> UNTIL WE MASTER ELECTRICITY STORAGE TECHNOLOGY, WE WILL BE DEPENDENT ON 'NIGHT-TIME' SOURCES OF ELECTRICITY

lower if Germany had not voluntarily divested itself of nuclear energy, which continues even in this crisis situation. Green taxonomy unnecessarily closes the door on low-emission sources capable of supplying stable energy even in darkness and windlessness. Until we master electricity storage technology, we will be dependent on 'night-time' sources of electricity. Green hydrogen has some potential, but its production is quite energy intensive, which will be a problem, especially in a situation where almost everything is about to be electrified.

All these technologies, not just renewables, will require trillions of euros of investment. Therefore, every unnecessary bureaucratic hurdle will have a cost of billions of euros on such a large scale. Karolina Mickutė also describes, using Lithuania as an example, that it is not only necessary to shorten the permitting processes, but also that in order to achieve such a fundamental change, it will be necessary to think about change in taxing companies as well. Not taxing reinvested profits is a cheaper and more effective solution than massive subsidy schemes from central budgets, which can increase the bureaucratic obstacles many times over.

The current energy turmoil poses a huge challenge for European politicians. Energy availability and a functioning energy market are essential to maintaining living standards and future economic growth. Irresponsible radical interventions in pricing may come back with high costs in the future. The same applies to inadequate targets, which will be impossible to meet. The Green Deal has noble intentions, but at the end of the day, it is the outcome that will matter more than the process. To quote Máté Hajba's words featured in this issue of the *4liberty.eu Review*: *"Let us hope we will remember the EU and the Green Deal as a torchbearer in many fields – such as sustainability, energy, research and innovation, trade, and not as an overambitious desire to be first at any cost"*.

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MEMBERS OF 4LIBERTY.EU NETWORK

Free Market Foundation (Hungary) is a think tank dedicated to promoting classical liberal values and ideas. The organization's projects focus on advocating a free market economy and fighting racism. The Foundation's activities involve education, activism, and academic research alike, thus reaching out to different people.

Liberální Institut (Prague, Czech Republic) is a non-governmental, non-partisan, non-profit think tank for the development, dissemination, and application of classical liberal ideas and programs based on the principles of classical liberalism. It focuses on three types of activities: education, research, and publication.

The Lithuanian Free Market Institute (Vilnius, Lithuania) is a private, non-profit organization established in 1990 to promote the ideas of individual freedom and responsibility, free markets, and limited government. The LFMI's team conducts research on key economic issues, develops conceptual reform packages, drafts and evaluates legislative proposals, and aids government institutions by advising how to better implement the principles of free markets in Lithuania.

The F. A. Hayek Foundation (Bratislava, Slovakia) is an independent and non-political, non-profit organization, founded in 1991, by a group of market-oriented Slovak economists. The core mission of the F. A. Hayek Foundation is to establish a tradition of market-oriented thinking in Slovakia – an approach that had not existed before the 1990s in our region.

IME (Sofia, Bulgaria) is the first and oldest independent economic policy think tank in Bulgaria. Its mission is to elaborate and advocate market-based solutions to challenges faced by Bulgarians and the region face in reforms. This mission has been pursued sine early 1993 when the institute was formally registered a non-profit legal entity.

The Academy of Liberalism (Tallinn, Estonia) was established in the late 1990s. Its aim is to promote a liberal world view to oppose the emergence of socialist ideas in society.

INESS (Bratislava, Slovakia), the Institute of Economic and Social Studies, began its activities in January 2006. As an independent think tank, INESS monitors the functioning and financing of the public sector, evaluates the effects of legislative changes on the economy and society, and comments on current economic and social issues.

Projekt: Polska (Warsaw, Poland) comprises people who dream of a modern, open, and liberal Poland. It is those to whom a democratic, effective, and citizen-friendly government is a key goal, and who help accomplish this goal while enjoying themselves, forming new friendships, and furthering their own interests.

Liberales Institut (Potsdam, Germany) is the think tank of the Friedrich Naumann Foundation for Freedom dedicated to political issues such as how liberalism can respond to challenges of the contemporary world and how liberal ideas can contribute to shaping the future.

Fundacja Liberté! (Lodz, Poland) is a think tank created in Łódź in 2007. Its mission is to promote an open society, liberal economic ideas, and liberal culture, and to organize a social movement around these ideas. Among the foundation's most recognizable projects are: Liberté!, Freedom Games, 6. District. The foundation is coordinating the 4liberty.eu project on behalf of Friedrich Naumann Foundation.

Republikon Institute (Budapest, Hungary) is a liberal think tank organization based in Budapest that focuses on analyzing Hungarian and international politics, formulating policy recommendations, and initiating projects that contribute to a more open, democratic, and free society.

Civil Development Forum (FOR) (Warsaw, Poland) was founded in March 2007 in Warsaw by Professor Leszek Balcerowicz as a non-profit organization. Its aim is to participate in public debate on economic issues, present reliable ideas, and promote active behavior. FOR's research activity focuses on four areas: less fiscalism and more employment, more market competition, stronger rule of law, and the impact of EU regulations on the economic growth in Poland. FOR presents its findings in the forms of reports, policy briefs, and educational papers. Other projects and activities of FOR include, among others, Public Debt Clock, social campaigns, public debates, lectures, and spring and autumn economic schools.

Visio Institut (Ljubljana, Slovenia) is an independent public policy think tank in Slovenia. Aiming for an open, free, fair, and developed Slovenia, the Visio Institut is publishing an array of publications, while Visio scholars regularly appear in media and at public events.

The Institute for Economic Research and Policy Consulting (Kiev, Ukraine) is a well-known Ukrainian independent think tank, focusing on economic research and policy consulting. IER was founded in October 1999 by top-ranking Ukrainian politicians and scientists, and a German advisory group on economic reforms in Ukraine, which has been a part of Germany's TRANSFORM program. Its mission is to provide an alternative position on key problems of social and economic development of Ukraine.

New Economic School – Georgia (Tbilisi, Georgia) is a free market think tank, non-profit organization, and NGO. Its main mission is to educate young people in free market ideas. It organizes seminars, workshops, and conferences for education and exchanges of ideas. NESG was founded by Georgian individuals to fill the knowledge gap about the market economy in the country and the lack of good teachers and economics textbooks.

ASSOCIATE MEMBERS

Centre for Economic and Market Analyses (CETA) (Prague, Czech Republic) is a pro-market think tank. Its main goal is to analyze the market, socio-economic and political phenomena in the Czech Republic, and point out their impacts.

Svetilnik (Ljubljana, Slovenia) is a non-profit, non-governmental, and non-political association. Its mission is to enlighten Slovenia with ideas of freedom. The goal of the association is a society where individuals are free to pursue their own interests and are responsible for their actions.

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