

Sustainable finance: the road to greater energy security in the Visegrad region

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Think Visegrad – V4 Think Tank Platform is a network for structured dialog on issues of strategic regional importance. The network analyses key issues for the Visegrad Group, and provides recommendations to the governments of V4 countries, the annual presidencies of the group, and the International Visegrad Fund.

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Executive Summary

The year 2020 has seen major economic upheaval caused by the coronavirus pandemic, the full macroeconomic effects of which are still unclear. Yet one megatrend remains clear for all to see: climate change and its effects is advancing. When combined with other major trends such as technology and demographic shifts, it not only poses great challenges to the existing economic models and their survival, but also creates [implications](#) for defence and security. Since every country's national security is heavily dependent on its economic security, climate change poses a significant danger as it can upset supply chains and destroy [food supplies](#). [The EU](#), recognising the importance of climate, has set a goal to become climate neutral by 2050, which means all EU Member States have serious work ahead of them to meet the target. Yet the EU's aim creates not only challenges, but also ample opportunities to rethink and redesign economic growth that is sustainable in the long run, and benefits both people and the planet.

Since energy costs and security are of utmost importance for economic growth, one of the main ways for national governments to best benefit from EU's decarbonisation agenda is to decarbonise energy systems and future-proof their energy security. Doing nothing is not an option, because government inaction will result in disproportionate effects in the people who work in industries that will become uncompetitive.

Everything starts from strategy

First of all, for any successful recovery, a well thought-out and designed strategy is key. It helps setting out a pathway, prioritising and organising resources, and permits the creation of action plans outlining how goals will be achieved. It is the perfect time for the region to take the lead in deciding on how they wish to transition to low-carbon growth; this should not be seen as a "diktat" from Brussels, because it is no such thing. The EU financing mechanisms

are a golden opportunity to change outdated energy and heating systems. Since most financing available is demand-driven (dependent on each country to apply for funding), it allows for plenty of discretion as to how and what to prioritise.

Government strategy, policy and action needs to be forward-looking, with the overarching goal to preserve and improve people's prosperity for the next decades, not just for today. [Businesses](#), [investors](#) and even [central bankers](#) have called for better and greener rebuilding of economies. It is time to take them up on their call, and to use all the tools available now to create economies that are fit for the future.

Post-COVID-19 recovery challenges and opportunities

- The economic fallout from the coronavirus pandemic will require speedy and effective government responses to ensure that economic growth can recover, which means that preferably it will be solutions that are labour-intensive (impacting employment numbers and thus demand). A well-designed shift to improved energy efficiency, mobility, [building retrofitting](#), and increased use of renewable energy sources (RES) would help creating new, sustainable jobs in the Visegrad region. This can be done in a socially-just way by using the many [best practices](#) and [resources](#) now available to national governments.
- The EU's Green Deal, its post-COVID-19 recovery packages and the [EIB's shift](#) to financing green projects all offer ample opportunities to fund a transition to low carbon growth, with many [examples](#) already set in Europe of how to create new renewable energy projects.
- It will be key for governments to craft national and regional plans for how to optimise the impact of the EU's financing mechanisms to create the greatest effect. During this process, it would be useful to apply a "sustainability or green lens" to all projects or rescue packages. This would also allow maximising the money mobilised from the EU sources.

- Public money spent supporting businesses to recover after COVID-19 should come with conditionality that requires concrete steps or pathways for change to ensure alignment with the objectives of the EU's Green Deal and the Paris Agreement.
- Public money or any post-COVID-19 recovery money should not be spent on locking in economies into high emissions pathways. It should focus on demanding climate-neutrality transition plans for different sectors and businesses, while also applying the "do no harm" principle from the [EU's Taxonomy](#) in the recovery and rebuilding phases.
- Taxation system will should be re-examined to see if there is a potential for creating tax incentives for green businesses or initial lower income taxes for those who are affected by the just transition plans.

The promise of sustainable growth

- The fast-growing interest of businesses and investors in sustainability, and especially in lowering their carbon emissions' footprint, creates an opportunity for countries to finance greening [initiatives](#). Low interest rates, [volatile equity](#) markets and low yields on traditional assets all create a benign environment for governments to explore public-private partnerships for decarbonisation. Early [evidence](#) shows that renewable energy projects have a multiplier effect, with a significant effect on job numbers.
- Renewable energy generation presents an opportunity to create future revenue streams, as an increasing number of [European corporates](#) seek to minimise their carbon footprints. In 2019 alone, corporate clean energy purchase contracts grew [by 40%](#).
- National Energy and Climate Plans (NECPs) should be made much more ambitious about achieving lower carbon emissions, in order to signal serious commitment and intention to the private sector, with a focus on renewable energy capacity expansion and energy efficiency. For example, the recently announced InvestEU's [Sustainable Infrastructure](#) window is one opportunity to

upgrade old infrastructure and to design new projects that will create extra jobs.

- The just transition plans should focus on bottom up community involvement, transparency and appropriate re-skilling. Sectors such as construction are less at risk from automation and are more appropriate for retraining. Ensuring that people have the necessary skills for green technology and digitalised jobs would future-proof parts of the labour market.
- The Visegrad national governments should carry out climate stress tests for their financial systems, which could include an energy transition risk stress test for each country's financial system (existing examples to learn from include [the Netherlands](#)). All central banks in the region should add climate or carbon stress tests to their existing stress testing frameworks if they have not yet done so, to identify potential risks to financial stability which is part of the central bank mandate. It would allow policymakers to gain a better understanding of how to adapt climate policies to mitigate the climate-related risks.

The coronavirus outbreak has made the unthinkable happen, with major economies grinding to a halt and international travel coming to a standstill. Now, it is time to think what is often seen as unthinkable: to reimagine economic models and energy systems, and to position the Visegrad countries well for the economic models of the future. By doing so, the region will also make itself much more secure and prosperous.

Introduction

It is an old wisdom that we either adapt to change, or we get left behind. From industrial revolution to internet technology, countries able to adjust their national strategies to benefit from change have reaped the greatest rewards. Historically, economic prosperity and national security have gone hand in hand: the mightier a country's economic clout, the more it can spend on defence and the more secure it can feel.

The global geopolitical system is now facing a new upheaval causing disruption: climate change. This might be the greatest change yet, requiring deep adaptation to new realities. Changing climate will not only disrupt food supplies and create new [migratory flows](#), but it will also change the existing economic and business models. Melting Arctic ice and changing sea levels will affect geopolitical power balances and create new rivalries, resulting in new security concerns. Increased frequency of extreme weather events and loss of biodiversity will have an [impact](#) on the real economy and on financial markets, adding worries about economic security. Combined with the mega trends of [digitalisation](#) and [ageing demographics](#) in Europe, countries will be forced to rethink their growth strategies sooner or later. Those who embrace the need for change earlier will benefit most by gaining competitive advantage, as their transitions to new growth models will be less disruptive.

While traditional security and defence used to ignore climate's importance to national security, this has changed with the realisation of the risks and threats created by climate change effects. Yet one often overlooked nexus remains: the one between sustainable finance and energy security.

The two fields exist in separate silos and, on surface, seem to have little in common. However, sustainable finance¹ is one of the most powerful tools for improving social cohesion and long-term sustainable growth – which are key for national security. Channelling financial flows and investments towards economic activities with positive externalities strengthens economic resilience and contributes to political stability.

Europe as a region is leading in sustainable finance, with a large number of energy transition projects and other decarbonisation initiatives. As a result, Europe is slowly increasing its renewable energy use and reducing its energy dependency on oil-exporting countries such as Russia and the OPEC bloc, which in turn has security implications.

With increased electrification, energy security and independence, as well as electricity cost per kWh, will be cornerstones for a country's economic growth. Yet in the Visegrad region, the political narrative on renewable energy and decarbonisation remains mostly sceptical, with mooted public debate about climate and sustainability. There is little public understanding of the benefits that increased use of renewable energy sources (RES) would bring.

It is time for the Visegrad countries to revise their national strategies and their vision for what kind of countries they wish to be by 2030 or 2040. It is a decision that will have major implications for future generations, their wellbeing and prosperity. As members of the EU, the Visegrad countries will be impacted by the course that the EU and other European countries take. It is a good moment in time to seize initiative and to go from being climate

¹ The term “sustainable finance” is here used in line with [European Commission's](#) definition: “finance to support economic growth while reducing pressures on the environment and taking into account social and governance aspects, leading to increased investment in longer-term and sustainable activities”.

laggards to climate champions, benefitting from the increased investor interest in sustainable finance and from new technologies.

From past legacies to future trends

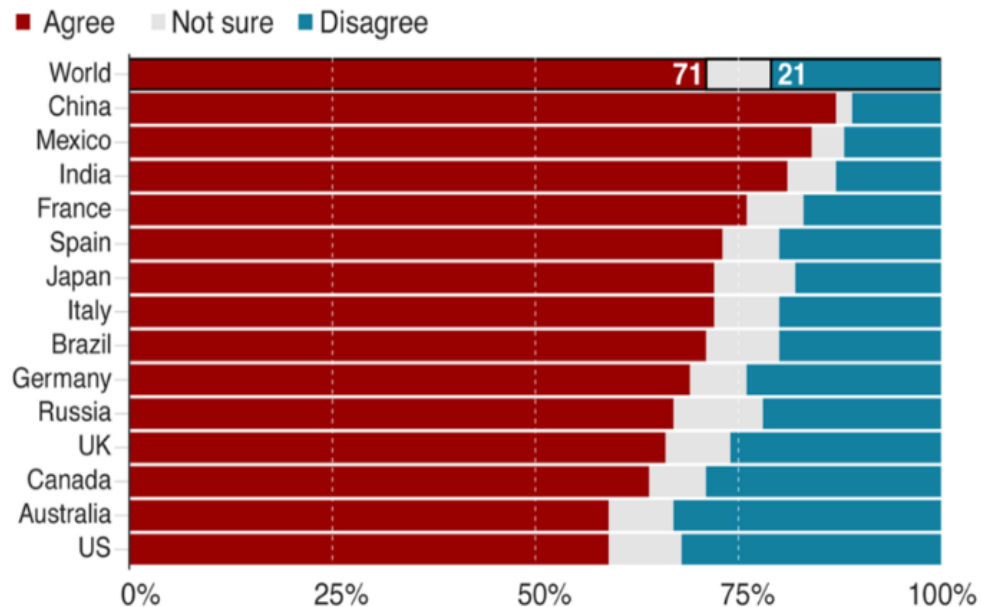
While at the start of 2020 the COVID-19 pandemic overshadowed all other policy debates, global awareness of the seriousness of climate change risks is rising. In some instances, the virus outbreak has helped to demonstrate the interdependencies of different countries and economies, exposing how damaging disruptions can be. The new decade has a distinctive climate Zeitgeist, with a growing number of people and businesses globally demanding climate action by their governments.

whose defining characteristic will be greater interest to integrate sustainability.

The combination of the economic fallout caused by COVID-19 and the growing sustainability agenda offers a rare opportunity for governments to press the reset button. Such an opportunity to change course presents itself once in century; last comparable one was the rebuilding after World War II. It allows countries to revamp their national strategy in a way that allows pursuing different growth, in this case - more environmentally and socially sustainable growth.

Most people think climate change is as serious as coronavirus

Percentage of people who agree that, in the long term, climate change is as serious a crisis as Covid-19



Source: Ipsos Mori data visualised by the [BBC](#)

The rise of the [Fridays for Future](#) and a myriad of climate action networks such as [Climate Action 100+](#) signals the coming of a new era,

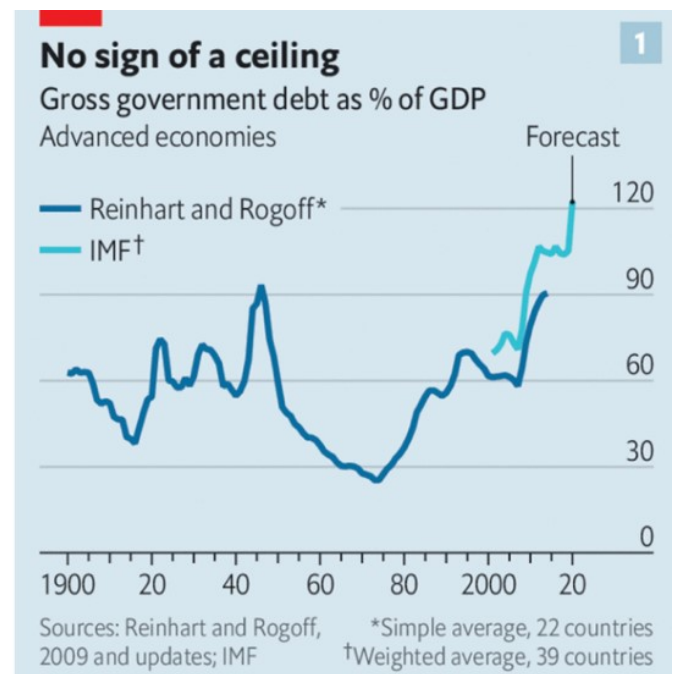
In Europe, this can be easier than in other regions. The new European Union (EU) Commission has shown determination to make Europe the first carbon neutral continent by 2050, to this end launching its [European Green Deal](#). This has implications for all EU Member States, creating challenges but also opportunities for additional funding and support for decarbonisation. With the production and use of energy accounting for 75% of EU's [greenhouse gas emissions](#), decarbonisation of energy systems and improved energy efficiency will remain a priority. Since the goal is to have at least 32% renewable energy in gross final energy consumption by 2030, initiatives and projects helping to achieve it will receive extra support. While 18% of EU's gross final energy consumption came from [renewable sources in 2018](#), it was only 14.9 for Czechia and 10.9 for Poland, which fell short of its indicative target under the [Renewable Energy Directive](#).

In 2019, governments across the world had to navigate a world full of uncertainty. Trade wars, Brexit, populism, civil disobedience, the rise of Extinction Rebellion and extreme weather events all created anxiety for political and business leaders. In addition, business and economic growth models have been undergoing ever greater scrutiny due to growing concerns about sustainability and the rise of inequality.

In 2020, governments have inherited this uncertain world coupled with economies that are still heavily reliant on high-emission economic growth, and now suffering from the economic and financial fallout from the COVID-19 virus. The [IMF](#) has predicted a 3% GDP contraction, a figure that might still be too optimistic if the virus returns in autumn. The [ECB's](#) scenarios estimate that the GDP contraction in the Eurozone might be 5, 8 or even 12 percent, depending on how the situation develops. Advanced economy [deficits](#)

will reach at least 11%, and government debt will go up significantly.

Gross government debt as percentage of GDP



Source: Graph by *The Economist*, based on estimates by Reinhart & Rogoff, 2009 and the IMF

Under the circumstances, governments in the Visegrad countries and elsewhere will face serious challenges to find the best ways to stimulate their economies and catalyse growth. The region has inherited economies reliant on heavy industries (such as automotive, metallurgy, mining, etc.), all of which are characterised by heavy emissions. The energy infrastructure is well suited to the economic models of the past, in which manufacturing plays a major role without accounting for negative externalities such as carbon emissions.

These past legacies leave the Visegrad countries in a disadvantaged position in a world of secular trends² such as digitalisation, automatization, artificial intelligence, electrification and climate change. These trends

² [Secular trends](#) refer to trends that are not seasonal or cyclical, remaining constant over the long-term.

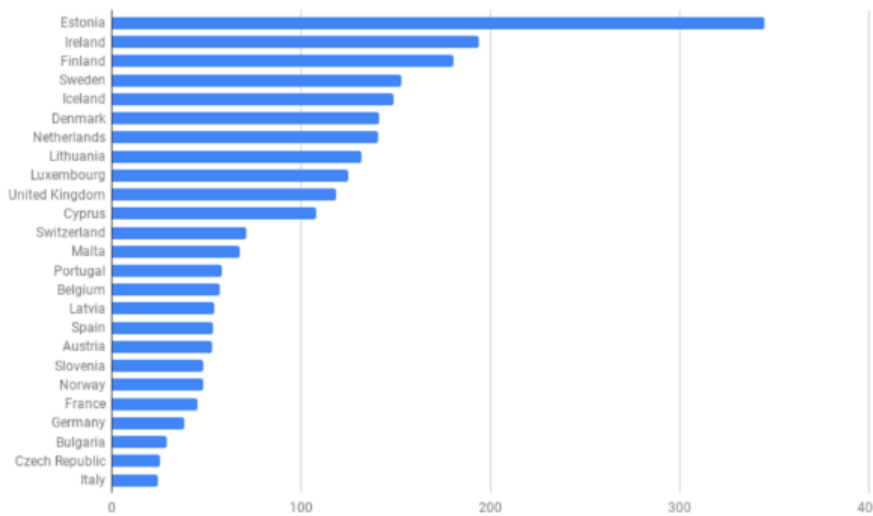
influence policies and consumer preferences, having direct effect on the region's dominant industries. For example, the case of rising electric car sales signals decline in demand for combustion engine cars, which are losing resale value as they are impacted by policy changes such as bans in major capitals.

While there has been a growth in start-ups and digital businesses across the region, the numbers still lag behind EU's Western member states including other former Soviet bloc countries like Estonia.

Fostering of a good start up and innovation ecosystem is important, allowing for the creation of future-proofed businesses that are well-positioned to reap the benefits of new technologies and growing digitalisation. Data shows that unlike certain sectors, European start-ups are also significant [job creators](#), often generating many more jobs than the older market incumbents.

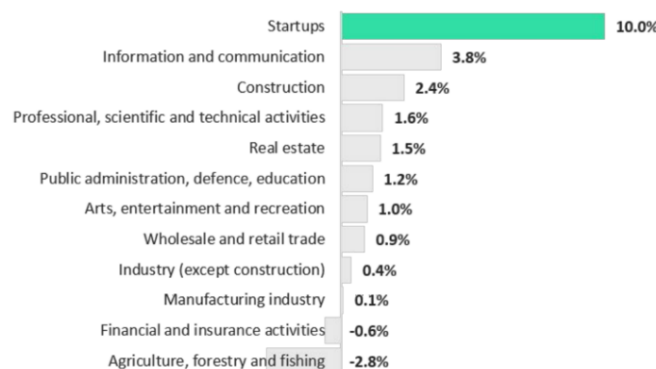
Number of start-ups per capita since 2013

Source: [The State of European Tech](#)



Year on year job growth rate

Source: [European Startups Launch report](#), data from Eurostat and Dealroom.co



While the global power generation mix shows the growth of renewable energy sources (RES), the global power generation mix, as shown in the graph below, is still heavily skewed towards fossil fuels.

Under the business as usual scenario, the [scientific consensus](#) is that the Paris Agreement goal of limiting global emissions to 1.5 degrees would be missed, resulting in catastrophic climate change.

The fossil fuel dominance has arisen in part because of [government subsidies](#) that often enable the survival of economically unviable energy production, such as coal plants. It is worrying that the region's [governments](#) do not fully disclose their [subsidies](#) for coal fired power generation. The lack of transparency prevents citizens from scrutinising government policy and associated spending, thus blocking them from forming more informed opinions and holding governments to account.

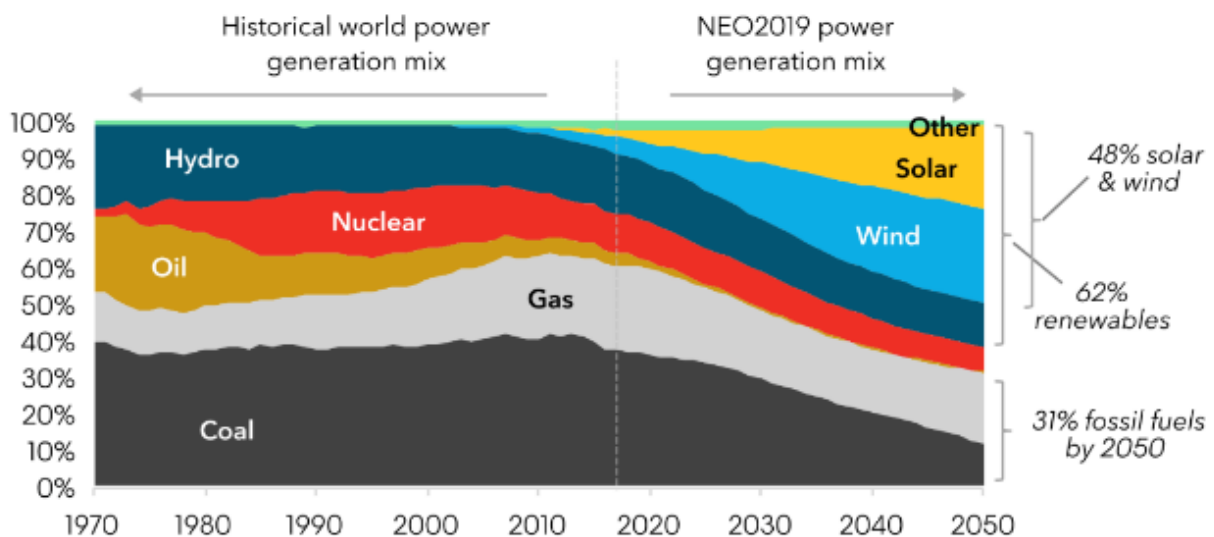
Meanwhile, the existing fossil fuel subsidies in the Visegrad region distort electricity prices by

failing to reflect the true costs of energy generation and supply. It also obscures the fact that the large utility company business models are heavily dependent on continuous government support and are not compatible with decarbonisation. They also [incentivise sectors](#) of the economy that rely on energy-intensive production, while discouraging the utility companies to invest more in new technologies and RES. In order to mitigate any negative socio-economic impacts, a broader range of supportive policy measures can be adopted while gradually phasing out fossil fuel subsidies.

A [subsidy phase-out](#) is necessary to incentivise both industries and households to opt for more energy-efficient equipment, vehicles and appliances. Investors in a range of energy technologies, especially RES, will be more willing to commit their capital. The divestment from fossil fuels has been accelerating over the last decade and is likely to continue, as shown in the graph [on the next page](#).

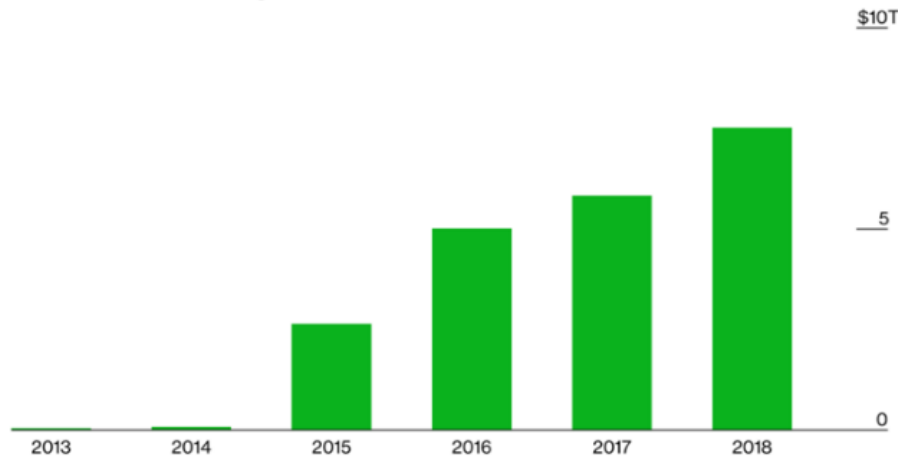
Global power generation mix

Source: [BloombergNEF](#)



Total assets under management of funds committed to divestment, in USD dollars

Source: 350.org data, visualised by [Bloomberg](#)



To subsidize coal, oil or gas is a political decision, as is the choice to limit subsidies for renewable energy generation. Yet phasing out reliance on fossil fuel consumption subsidies is a pillar of sound energy policy, and reform of pricing is key for a more resilient, secure and sustainable energy sector over the long term.

Another trend that is accelerating is the use of litigation against governments and utility companies. In a watershed case, [ClientEarth](#) scored a major win in Poland by using a novel shareholder lawsuit against the coal plant project's co-owner, Enea. The ongoing [difficulties](#) surrounding the construction of the Ostrołęka C coal plant have exposed the financial risks and economic unviability of coal plants. The recent Enea and Energa [announcement](#) that they are ending their involvement in the plant, and will have a total write-down of EUR 220 million is the clearest example of how coal plants are becoming financially unviable. In [the Netherlands](#), a small non-profit foundation obtained a historical win against the government, forcing it to cut emissions and to close all recently opened coal stations. In [the UK](#), the government has been sued for approving Europe's largest gas station, as it is at odds with the government's own climate ambitions. The [rise of litigation](#) not only

increases the risk of legal action against the region's biggest polluters, which include the major utility companies. To add to coal's woes, it is also becoming [uninsurable](#), which makes the operation of coal plants very difficult.

The reliance on coal for energy production is becoming increasingly risky. Its cost is set to rise, and a growing number of [financial institutions](#) are avoiding coal funding. The rising costs will mean that the current cheap energy prices will be impossible to maintain without state support, which might become financially untenable for governments in the long term. As such, it delays dealing with the growing issues and puts an extra financial burden on future governments and generations.

The Promise of Renewable Energy

Renewable energy has made major progress in the last decade, more than even its supporters had forecast. The RES technologies have seen great improvement, with solutions found to a lot of the issues including intermittency. Modern [grid technologies](#) such as advanced batteries, real time pricing and smart appliances all help improving grid performance.

The costs have fallen significantly, making RES more economically viable in the medium to long-term than fossil fuels. [Research](#) shows that

levelized costs per unit of electricity from new utility-scale onshore wind and photovoltaic solar power plants have dropped 70% and 90% respectively. So, while the upfront investment costs for renewable energy projects remain considerable, the cost of electricity from renewable sources in the long-term will be cheaper than from coal, gas or even nuclear. To shift to more RES makes economic sense: it will make electricity cheaper in the long run. The main obstacles to RES growth are the skewed regulatory frameworks and mispricing in global markets (the failure to fully price in negative externalities).

There will be a range of challenges for governments to address. Some of those include the modernising and integration of energy grids, siting of RES facilities and transmission. Siting, or locations for building solar panels or wind farms will need to include community consultations and procedures, but these should be streamlined and designed carefully. In this case, a lot can be learnt from Germany's [Energiewende experience](#), which shows that lack of overall strategy combined with poor policy design can hamper efforts to build up more RES capacity.

The regional governments and utility companies should look into opportunities offered by shifting from electricity consumers to prosumers³, and how this could be both better incentivised and utilised. National regulation can be amended to enable a system-wide integration of energy communities into the existing market structures, while maintaining their financial appeal. [Studies](#) have shown that there are ways of going beyond feed-in-tariffs by using peer-to-peer trading and other innovative approaches, and that distributional effects can be [mitigated](#).

Last year, an estimated one-fifth of all renewable capacity deployed globally consisted of individuals and small-to-medium-sized

enterprises installing solar PV panels on their roofs or business sites. Such decentralised installations – known as distributed solar PV – accounted for over 40% of global solar PV deployment last year.

Those who argue that transitioning to renewables in Europe is pointless if Asian countries keep building coal plants are missing the growing [trends](#) of going green. [South Korea](#) is going ahead with Asia's first Green New Deal, committing to stop all new coal financing and to support renewable energy. Remarkably, the party who tabled the proposal won a landslide victory in the recent elections, showing the salience of climate issues in national debates. [India](#) is choosing to back renewables, as is Taiwan.

The timing for starting a transition to low carbon economic growth could not be better. RES technologies have sufficiently matured, and the EU's new greening agenda along with its financing mechanisms is coming into force. Growth in the post-COVID-19 era can be re-examined and re-defined to ensure it is more sustainable and resilient in the future.

Air Pollution

Air pollution presents a serious public health problem. In the Visegrad countries, the share of deaths attributable to air pollution is nearly double the amount when compared to Western Europe. In 2016 the [World Health Organisation](#) (WHO) reported that out of 50 cities with the most polluted air, 33 are in Poland. It is estimated that 50 thousand people in the country die due to causes linked to air pollution. In contrast, the global COVID-19 pandemic has killed just over a [thousand people](#) in Poland. The [World Bank](#) (WB) has calculated that the economic costs associated with disease and premature death might be as high as USD 40bn

³ [Prosumers](#) refer to active energy consumers who both consume and produce electricity.

a year. Not only is this a human tragedy, but it is also a significant economic loss.

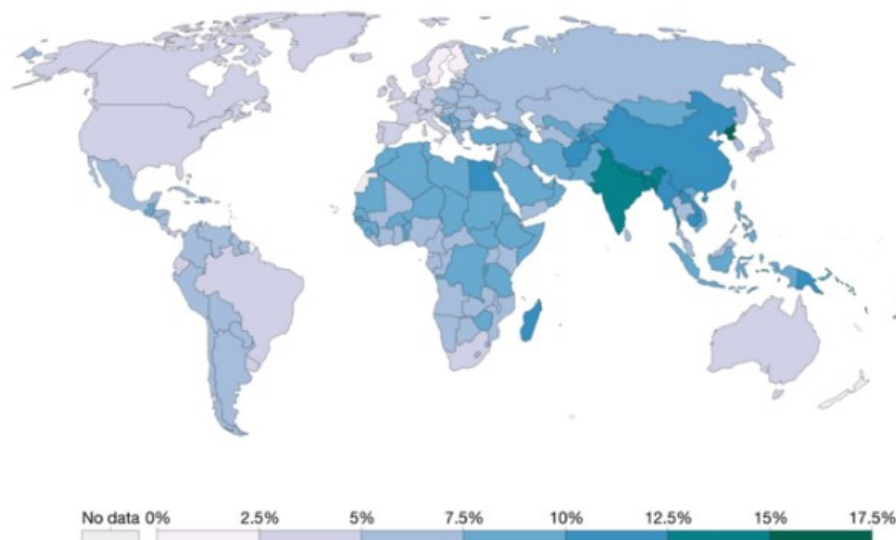
The power generation system in Poland is directly contributing to poor air quality in Poland. In 2018, the [European Court of Justice](#) ruled that Poland had repeatedly breached European air standards, which means the government faces hefty fines – a further cost to the country. Yet the government response has been unsatisfactory and piecemeal. Poland still has not set a coal phase out date, and has not signalled increased climate ambition. The efforts to replace polluting [household boilers](#) have been recommendable, but there has been very little progress to diversify away from coal.

While some have lauded carbon capture and storage⁴ (CCS) as a solution to the emissions and air pollution issues, this remains expensive, risky and so far, is contested at [scale](#).

Share of deaths attributed to total (indoor & outdoor) air pollution as a risk factor, 2017

CCS is not a single technology, and the underlying science of it is rarely fully understood by policymakers. CCS is complex, requiring expensive technologies, some of which come from the oil industry. Large knowledge gaps remain about the [life-cycle costs](#) of CCS systems, but there is a growing consensus that CCS is an expensive solution. An early real-life [study](#) looking at a gas-fired power plant in Norway showed a cost of more than USD 300 per tonne of CO₂, which is approximately 20 times the international carbon emission allowance price. In addition, storage of CO₂ would require suitable geological formations that are able to [safely](#) take huge amounts of compressed CO₂, something that [research](#) casts doubt on – especially in light of cheaper available alternatives such as RES. All of this makes CCS an expensive way to keep an outdated economic model going.

Source: IHME, Global Burden of Disease



⁴ [CCS](#) is most widely defined as a CCS system, which includes capture (separation plus compression),

transport, and storage (including measurement, monitoring and verification).

The case against nuclear

Developing more nuclear energy capacity has been often lauded as a solution for the decarbonisation challenges in the Visegrad region, a policy that is also getting supported by the US diplomats when discussing improved energy security. However, nuclear is far from a risk-free energy source.

First of all, decommissioning a single nuclear power plant takes approximately 20 years, and currently no country has a final fully operational disposal site for nuclear waste. It is estimated that the most dangerous and potent forms of nuclear waste might need safe storage for up to [one million years](#). The existing nuclear waste sites operate on ten thousand or a hundred thousand-year timeframes. These are numbers that are difficult for the human mind to grasp; they also entail inter-generational repercussions. While many argue that storage solutions making nuclear energy more viable will be found as technologies improve, research finds that governments continuously fail to accurately estimate the costs of decommissioning, storage and disposal of nuclear waste. The cost estimates are further complicated by the great level of uncertainty, and there is very little data available on the matter. By mid-2019, only [19 out of 181 closed nuclear reactors](#) had been fully decommissioned, and only 10 out of those to “green field” status. The costs of nuclear waste storage usually end up on the public books, with governments and taxpayers taking on the long-term liabilities. According to [research](#) by the Czech Technical University, the current funding is insufficient to cover all the future post-decommissioning costs, raising questions about how the costs will be covered later on.

Notably, nuclear reactors are notorious for running over their initial budgets and taking much longer to complete than anticipated. The construction of the UK’s Hinkley Point plant is both late and has run [GBP 2.9bn](#) over budget, but because of the design of the project, the costs will be covered by the firms building the

plant and not the taxpayers. However, even in this case there is a catch. The companies building Hinkley Point will benefit from relatively high fixed electricity price for customers, which was an agreement in order to create predictable costs for consumers and offer leeway for the companies. As a result, power from Hinkley Point C is expected to cost GBP 92.5 per megawatt hour, in comparison to [GBP 40](#) from wind power by year 2025, the cost of which has decreased by 30% in the last two years alone. From an economic or financial point of view, or even one of social equity, nuclear power is not fit for future use.

Consequently, the stark and uncomfortable truth is that nuclear energy production is not competitive once all state financial support is removed. The fact that the Czech government had to provide both financing and political guarantees in order to expand the [Dukovany power station](#) shows the inability of such projects to attract private financing or operate without extensive state support. The government decision to guarantee legislative and regulatory environments for the state-owned CEZ subsidiary carrying out the project means that the public will end up absorbing the extra costs.

From a security perspective, nuclear reactors and nuclear waste present their own set of security and safety issues. A nuclear catastrophe can be triggered by a number of causes, such as human error, technical failure or a climatic event as in the case of Japan in 2015. The attack by the malicious software [Stuxnet](#) on Iran’s nuclear facilities exposed cybersecurity vulnerabilities. An ongoing cause for concern is the growing threat of terrorist, extremist or lone wolf attacks. The scale of the damage an attack could cause means that nuclear reactors and nuclear waste depositories need to be continuously secured and monitored, all of which is costly.

The promise of sustainable finance and renewable energy

In the last decade, scientists have reached a consensus that man-made climate change is happening. This has led to the traditionally conservative financial sector now looking into climate risk and sustainable finance. Climate change will give rise to significant [structural adjustments](#) to the global economy, which will impact banks' balance sheets and institutional investors' portfolios.

[Research](#) shows that climate risks are material⁵, and they are on the rise. Biodiversity loss, rising sea levels, more frequent extreme weather events – all destroy assets, affect supply chains and cause financial losses. These in turn will sooner or later prompt more regulatory action by governments and change of private sector behaviour, as business and public concern over climate change impacts rises.

In the Visegrad countries' case, climate change poses particularly difficult economic and financial challenges. The EU is the most likely region to continue adopting more stringent climate action policies, which in turn will have direct impact on the region's economies that are still reliant on high-emissions growth.

For example, in Poland, the government owns nearly 60% of [PGE](#), the nation's main utility company. In Czechia, with 70% of shares, the state (and thus the public) is the majority shareholder of the region's largest utility company, [ČEZ Group](#). Both PGE and ČEZ are reliant on coal for energy production. Both own nuclear facilities, including projects to develop new ones. [Research](#) shows that PGE's profitability is at risk because of EU's more stringent air pollution regulations and its rising carbon prices. Ensuring that the existing coal

power plants are compliant with the new EU emissions limits or the [Best Available Techniques Reference](#) (BREF) would increase [coal generation costs](#) by 10% and lignite ones by 15%. If the rising costs are pushed on consumers, this will be politically unpopular and affect disproportionately the worst-off sections of society. If the company is unable to ensure that the costs are absorbed by consumers, it will suffer losses that will have to be absorbed by its shareholders, which in this case is the government. [PG&E's](#) bankruptcy in the United States serves as a good example of how tricky and expensive it can be when large utility companies run into financial difficulties.

It is interesting to note that other EU countries that also joined the Union in 2004 derive a much larger share of energy from renewable sources.

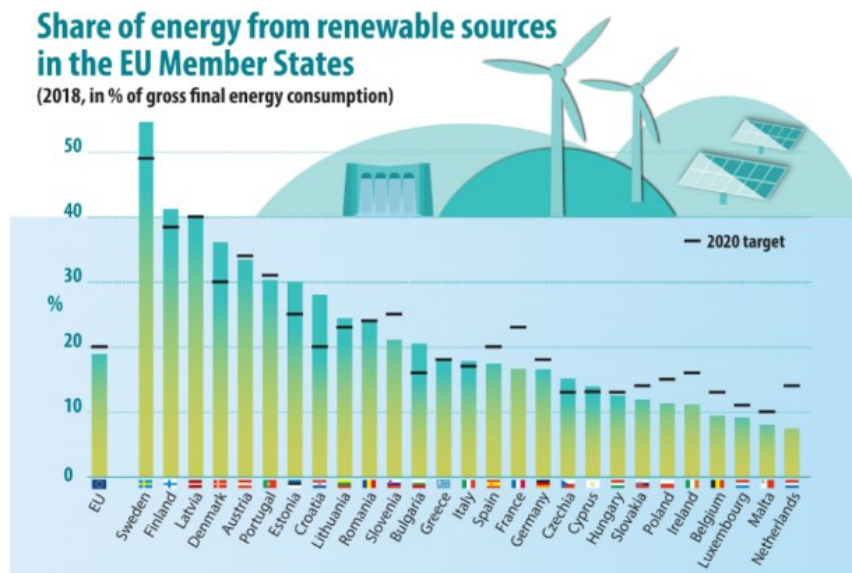
If the EU follows through its promises to go carbon neutral by 2050, some of the utility companies' coal assets risk become "stranded."⁶ Under such a scenario, most of the losses will be incurred by the government, leaving taxpayers to foot the bill. A revealing example is [PGE's plan](#) in Poland, where the company is looking to create a separate and fully government-controlled entity for its dirty assets, all of its stakes in coal-fired electricity plants. A warning for ČEZ came a couple of years ago when [research](#) showed that it was one of the worst prepared utility companies for a shift to greener economies.

An important aspect is that the Czech pension funds are heavily exposed to the domestic market; their portfolios include Czech government bonds as well as shares in local companies. This means that the pensions of future generations will be directly affected by financial problems experienced by Czech

⁵ "Material" here is used as in "materiality" in finance, which defines why and how certain issues are important for a business or an entity, and can have a major impact on the financial, economic, reputational, and legal aspects.

⁶ [Stranded assets](#) refer to "assets that have suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities".

companies, including their failure to transition to low carbon business models.



Source: [Eurostat, 2018](#)

Another development that should worry the region's governments is the [growing interest](#) in the carbon risk of sovereign bonds (the issuance of debt by a country to finance its activities). With an increasing use of carbon stress tests by investors, countries whose economic models heavily rely on fossil fuels and high emitting industries might be seen as riskier. If this starts increasing the costs of borrowing, it can hamper a country's economic competitiveness and have an adverse impact on public finances.

An additional factor affecting company finances is the EU's new Sustainable Finance Agenda. In 2019, the European Parliament and Council finally reached a deal on the [EU Taxonomy](#), an EU-wide classification system for sustainable economic activities and investments.

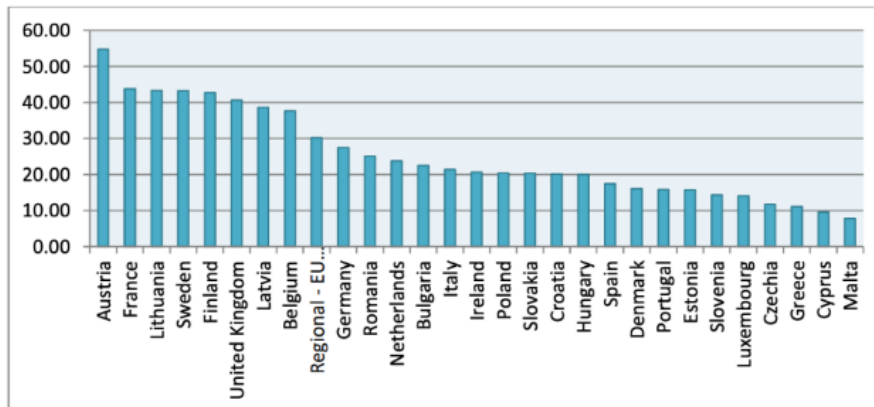
The initiative is a world-first instance of an attempt to create a classification system with the aim of incentivising green investment. The EU's efforts to reach the 2050 emissions neutrality goal will also be accompanied by 1 trillion euro [green investment plan](#), which will focus on transitioning away from fossil fuels and

coal in particular. Importantly, the money available through the Just Transition Mechanism (JTM) will not be available for financing nuclear plants.

In the EU, the European Investment Bank (EIB) has been one of the main vehicles for driving climate investment. Its watershed [decision](#) to change its strategy and to align it with the Paris Agreement goals will lead to an ever more difficult financing landscape for fossil fuel projects, as they will no longer qualify for support after end of 2021. The EIB has been one of the key actors driving investments in climate action and environmental sustainability across EU countries. Since 2014, the volumes have increased from 24% to 28%, but discrepancies between states still remain. As shown in the graph below, in comparison to other countries, the Visegrad region has not sufficiently taken advantage of the EIB's financial and advisory support.

**EIB's Climate Action 2015-2018, EU
(share of Climate Action in total lending,
percentage)**

Source: [Bankwatch](#)



While the JTF mechanisms have their [shortcomings](#), they do provide an opportunity to access money that can initiate change. Projects aimed at re-skilling the workforce and supporting the creation of new businesses should be prioritised. While the coal mining jobs will be lost, new jobs will have to be created to service the retrofitting of buildings, upgrading of the electricity grid, installing of new renewable energy generation capacity, amongst others.

In Europe, several multilateral organisations, banks and investors have the technical expertise and know-how to structure investments in renewable energy infrastructure.

The European Bank for Reconstruction and Development (EBRD) has recently offered a [guarantee programme](#) to boost the investment in renewable energy in EU's Southern Neighbourhood. Such initiatives allow to mobilise private sector capital by reducing the risk for private investors. The EBRD's green investments to date are estimated to be round EUR 30bn, and the bank has developed expertise in structuring financing for renewable energy projects.

At a time of COVID-19 hardship, it is paramount for governments to start scaling up national capacity to access various sources of financing just transition initiatives across the region. In order to be able to benefit more from the existing EU mechanisms for financing such transitions, the region's governments and local authorities need to improve their capacity to utilise the existing financing mechanisms. This includes the training of officials, so that they are better placed to understand and successfully use the opportunities offered by the EU's new focus on green growth.

Which way forward in a fast-changing world?

The four Visegrad countries are some of the fastest growing countries in the EU. While the Eurozone GDP growth lingers just above 1.4%, Slovakia enjoyed a growth rate of 3.8% and Hungary of 3.7% in 2019. If the V4 would be a single country, it would be the [5th largest](#) economy in Europe and 12th globally. This means that together, the Visegrád countries can offer markets of scale and attractive investment opportunities. [Some](#) even argue that the 2020s will be a decade when smaller countries will thrive, with most progressive policies and economic growth models coming from smaller countries working together.

Governments will always have a role to play when it comes to shaping the markets and deciding on the economic growth path for their countries. What role governments choose to play, however, is closely linked to the country's vision and the strategy that accompanies it. For example, the Estonian government's [strategy](#) to make the small Baltic nation a world-leader in digital economy and tech start-ups has led to the adoption of a particular mix of public policies, all of which are aimed at fostering digitalisation and innovation.

The view that transition to zero emissions has to come at the expense of economic prosperity is fundamentally flawed. While that might have been the case decades ago, it is no longer true. With the EU's "[Next generation EU](#)" plans, new financing mechanisms in place, very low borrowing rates for governments and COVID-19 economic effects, the situation on the ground has changed dramatically.

The recovery policies can be used to deliver not only on economic and climate goals, but also on the socio-economic dimension. A set of fiscal recovery policies that offer particularly high economic multipliers along with positive climate impact have been [identified](#), some of which include renewable energy assets, grid modernisation, energy efficiency projects, clean R&D spending. Support for energy efficiency retrofits are especially suitable for being directed towards lower-income households to decrease social and health inequality by reducing real current and future electricity costs.

National context, of course, will determine the exact mix of policies and approaches, but the overarching direction towards decarbonisation should apply to all countries. Each country remains in charge when it comes to deciding what its priorities and exact path to low carbon growth will be.

Yet the Polish and Czech [governments' policies signal](#) their belief that greening is optional and that their countries will not be affected by global

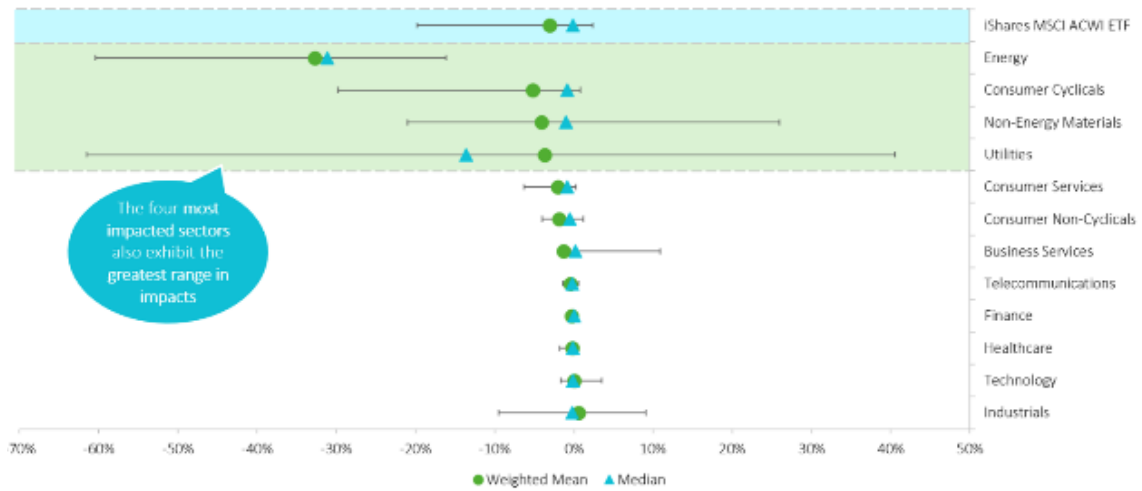
warming or by other countries' climate action. At heart, such beliefs and inaction show a status quo bias and an over-reliance on availability heuristics. Even if the region's governments delay climate action, other developed countries' policy responses will move the markets and affect economic competitiveness. The PRI's [Inevitable Policy Response](#) (PRI) analysis predicts that 2025 will be a turning point for more stringent climate policy adoption, coinciding with countries' 3rd round of Nationally Determined Contributions (NDCs). This would then have a major impact on company cash flows and valuations.

There is a reason why the sustainable finance and climate risk debate is gaining momentum across the world, and why [China](#) is positioning itself to reap the benefits of decarbonisation, and other Asian countries looking to shift to green energy. While China is still using fossil fuels and commissioning new coal mines, it is also the largest solar plant producer in the world and has overseen the greatest expansion of electric bus fleets for its public transport.

Since the V4 countries are EU Member States with mostly stable market economies, they are attractive places to invest. As most institutional investors still allocate large parts of their portfolio to Europe, the V4 countries have an opportunity to attract investment in long-term green infrastructure and other decarbonisation projects. Investors such as insurance companies, pension funds and other asset managers have shown a great appetite for such assets, of which there is currently a [shortage](#).

Sectoral equities - four most impacted sectors in the index: Energy, Consumer Cyclical, Non-Energy Materials and Utilities

Source: [UNPRI](#), using *Vivid Economics Net Zero Toolkit*



Financing the Transitions

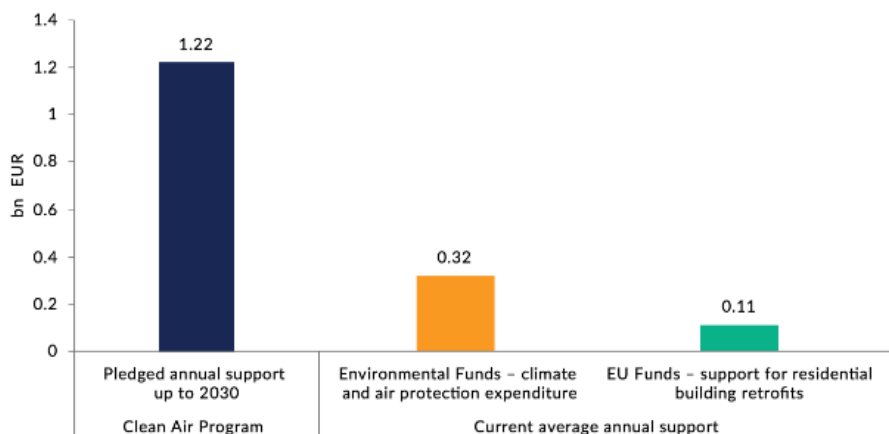
In the case of decarbonisation, some of the financing for a transition to low or zero carbon economy will have to come from the public sector. The private sector alone will not be able to deliver on such important aspects as clean tech R&D, skills upgrading or retrofitting of buildings. The private sector is also unlikely to finance all the social aspects of a transition to low carbon economy, something that will remain a government responsibility.

Yet the idea of just transition is key, as it is the crucial link between the environmental and social dimensions of change.

Currently, [research](#) shows that there is a funding gap for energy efficiency and transition, so it will be necessary to look into options for mobilising private capital to achieve any climate ambitions.

Average annual support for energy efficiency in buildings & future investment needs

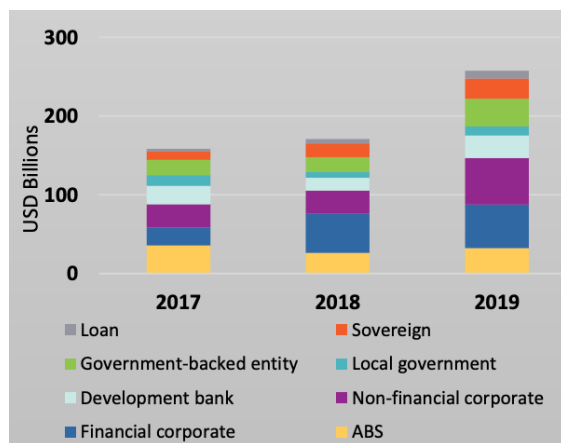
Source: [WiseEuropa](#) (based on Central Statistical Office data (Central Statistical Office 2015-2017) and National Energy Efficiency Action Plan for Poland 2017 (Ministry of Energy 2017))



Governments do have multiple options and policy tools at their disposal, which enables them to shape the market and create incentives for both funding and for the growth of strategically important industries.

One tool that is gaining more attention is the issuance of green bonds, which are by now well-established and are in high demand. By the end of 2019, the green bond market saw a record issuance of [USD 257.7 billion](#). In total, USD 56 billion of sovereign green bonds have been issued by [13 governments](#), with another 14 countries looking into issuing such bonds.

Green bond issuance, 2017 – 2019



Source: [Climate Bonds Initiative](#)

As the graph above shows, green bonds can be used not only by sovereign governments, but also by local governments and government-backed entities.

A growing category of bonds are [sustainability bonds](#), which channel money towards projects that are the green or environmental and ones that are focused on social aspects. The Visegrád regions, which face just transition issues in their coal regions, could examine closer the idea of issuing [“just transition bonds.”](#) Designed well, such bonds would help finance the investment human capital that is compatible with the wider ecological transition, while avoiding exacerbation of inequality and the creation of “left behind”-areas. Such an approach would help bring on board the more sceptical parts of

the population by generating tangible benefits. Blueprints for creation of such just transition bonds already exist, and can be further tailored to suit the needs of each individual country. For example, [Caisse des Dépôts](#) has developed its own framework for social, green and sustainability bonds, and the German region of [North Rhine Westphalia](#) has created and implemented its own sub-national sustainability bond framework. All the proceeds from such bonds are then used to boost environmental regeneration, energy transition or social inclusion, or to finance local SME projects or their expansion.

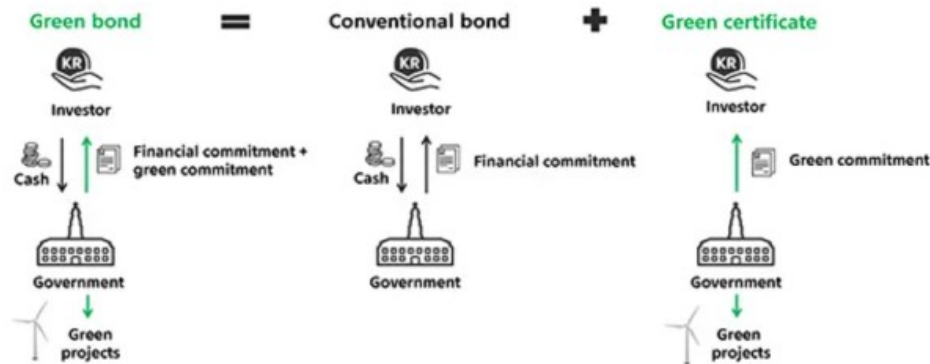
An already existing innovation is offered by [Denmark](#), which has found a way to issue green government debt without hurting liquidity for its sovereign bonds market. Its solution is to create a conventional bond that is accompanied by a so-called green certificate, sold at special auctions but also tradeable separately. The funds will then be used for sustainable projects.

The Danish approach shows that governments can innovate to find financial solutions that are most suitable for their needs.

Investors have long complained that there is a lack of green bonds to invest in or that some of the issued bonds by individual green projects are too small in terms of value.

If the V4 governments were to change their national strategy and policies in favour of green growth, it would pave the way for a focus on exploring new avenues of financing decarbonisation. The emphasis should be on creating efficient, market-based investment frameworks, accompanied by adequate market design that is able to trigger and foster investments in more RES. To do this, governments can take advantage of available best practices, world class research and concrete [policy recommendations](#) in order to build evidence-based policy that suits the region. This would entail serious rethinking of the existing large utility companies’ business models, something that is very much needed.

A new model for sovereign green bonds



Source: [The Financial Times](#)

Another potential avenue would be the issuance of green bonds that could finance green infrastructure or renewable energy projects in partnerships with private investors. The idea of public-private partnerships (PPPs) has been around for a long time, allowing to learn from best and worst practices. The region's governments could look into designing the most appropriate PPPs, ensuring that legal, political, commercial and financial risks are appropriately allocated between public and private parties. [Research](#) shows that in order to leverage private sector investment in green infrastructure, public procurers have to take an active role in defining parameters, assessing risks and including incentives for the inclusion of green bonds in tender proposals.

Currently, the Visegrad governments have not integrated sustainability across all government activities. Officials lack capacity and expertise to understand and regulate green finance deals. Such issues need to be addressed urgently, in order to ensure that government policies are not outdated and that they take advantage of the most promising economic and growth opportunities.

As such, the Visegrad governments have an opportunity to redefine their countries' future trajectory. An effort should be made to investigate the best ways for integrating support for clean energy into COVID-19

economic-recovery programs, with the aim to accelerate the shift to decarbonisation. The design of economic stimulus programmes should take advantage of the structural benefits arising from growth in renewables, such as economic development and job creation. Adopting a policy of fiscal expansion would help prevent negative reinforcing feedback loops from a slowdown in private sector activity, when the lack of confidence results in a weaker economy through Keynesian 'multiplier' and 'accelerator' effects. Since financial systems have remained functional during the COVID-19 crisis and low rates have persisted, it is a great opportunity to explore targeted investments in productive assets, especially the ones that deliver higher short and long-term economic multipliers. Some of these will also help achieve greater energy security, such as a focus on the modernisation of energy grids, decarbonisation of priority sectors and energy efficiency projects.

In order to address the concerns that such efforts would suffer from abuse of public funding, lessons should be learnt from the poor design of the solar power subsidies in the past to avoid public backlash. Governments will not be able to effectively deliver decarbonisation without sufficient public support for the transitioning policies. To help build such support, financing of infrastructure upgrades

can be modelled on best practices and any just transition attempts need to adhere to bottom-up approaches. Governments should design and launch pilot projects first to test the viability of the financing models used, experience from which could be used for improved policy.

Financing the transition in the V4 countries

The Visegrad countries need to craft a clear and ambitious vision for the future, and then act boldly to achieve it. Since the broad agreement is that future will be electric, it is time to start preparing for it and to lay the groundwork for a more modern energy system.

The existing large, inflexible conventional energy plants are relics of the past; it is time to explore innovative solutions and to start preparing for the more decentralised and green energy generation in the future. Such an approach would also improve national security, as local storage and nested microgrids make the power system, including critical facilities, more reliable during disasters. This allows for environmental, economic, and social improvements in the same places, at the same time.

To begin with, governments will need to craft financing that involves patient, long-term strategic [finance](#), which fosters clean technology development and adoption. For example, investing in the creation of a regional smart grid would help digitalise energy systems, allowing for the optimisation of the efficiency and performance of renewable energy technologies. It would also enable the not only the grid operators, but also end users to have advanced management and control options.

The latest [report](#) by the International Renewable Energy Agency (IRENA) states that investment in five main pillars of decarbonization will enable the achievement of a near- or zero-carbon global economy. The five pillars comprise electrification, system flexibility, renewable energy generation, green

hydrogen and innovation, all of which can be directly influenced and guided by government policy and action.

Governments can act as forces driving innovation and change, instead of just 'de-risking' the economic landscape for risk-averse private actors. [State funding](#), particularly through development banks, allows governments to play a key role throughout the entire innovation chain and not just in public good areas such as research and development. Historically, investments in innovation have proved to be cumulative, with the results showing '[path dependency](#)' (in the sense that innovation today is dependent on innovation yesterday). This means that it is likely that the leaders emerging from this race will remain leaders for years to come.

To influence the emergence of innovative new 'green' companies, technologies, or to transform energy markets, governments will need policies directed at both the [demand- and supply-side](#). For the energy sector, demand-side [policies](#) include environmental regulations, public procurement, support of private demand, and other systemic policies that have an impact on energy consumption patterns.

Supply-side policies focus on how energy is generated and distributed. They influence the development of innovation in energy technologies through the provision of finance, for example, grants, equity support, tax incentives, subsidies, and any other monetary benefits for specific energy technologies (including favourable energy pricing schemes such as feed-in-tariffs). The other ways of exerting influence is through service support such as information brokerage, networking, and development of common visions. The reality is that state support for clean technologies must continue until they overcome the [sunk-cost advantage](#) of incumbent technologies, and these sunk costs are long in [some cases](#).

The German feed-in tariff (FIT) [policy](#) is a good form of public 'patient capital' supporting the

long-term growth of renewable energy markets. By contrast, the frequent uncertainty surrounding tax credits in the US and the [UK](#) are a form of 'impatient capital', blocking industry take-off. There will be a need to offer new [financial products](#) and services tailored to different groups of consumers or prosumers, enabling them to choose more energy efficient options.

Redesigning the energy would improve the long-term financial outlook for the utility companies, system, increasing cash flow [stability](#) from underlying assets.

Conclusion

Delaying transition to low carbon growth comes with many risks. The longer the delay, the less orderly, more disruptive and costly the transition will be. The worse will be the effects on the poorest and most disadvantaged groups in society, whose ability to adapt rapidly is more limited. Major upheavals also create political and economic instability, making nations much less secure and more vulnerable to foreign meddling in their internal affairs.

The Visegrad governments do have stark choices to make, but they are also well-placed to take advantage of their location and interlinkages to other European markets. Sustainable finance offers solutions to energy transition financing problems; what is required of governments is political commitment to decarbonisation across all economic sectors, accompanied by well-crafted national policies to that end. The creation of a stable, predictable regulatory and policy environment geared towards innovation, low carbon growth and new technologies would enable the region to position itself well for the so called "4th industrial revolution."

To ensure future energy security, it is key to increase self-sufficiency, to both minimise risks to energy supplies and to price fluctuations. While intermittency was and still is an energy supply problem, it is not impossible to solve, provided there is real political will and sufficient

resources deployed. Technologies have matured significantly in the last decade, and they keep improving at a fast pace.

As the world faces a historic energy transition, countries that fail to invest in R&D and technological upgrades will be forced to import the solutions from elsewhere. The Visegrad countries need to seize the moment and focus on positioning themselves well during the upcoming historic energy transition, or they will be forced to play catch up and pay more for it.

The region's governments have a golden opportunity to reap financial, economic and reputational benefits from a green transition. A region-wide assessment should be launched to better understand the economic opportunity landscape arising from decarbonisation, and to identify the places that will need the most support during transitions to low carbon growth. It should include consultations with all relevant stakeholders and sectors to identify the best ways forward; ones that are inclusive, as well as socio-economically and inter-generationally just.

A policy shift would unlock private investment, act as a positive public relations stunt, and enable getting rid of public assets that risk getting stranded in the future. Everyone will benefit from cleaner air, water and soil, as well as from preserved biodiversity and lack of disruption to food supplies. A problem that does need to be tackled is the public's perception of green initiatives and renewables as "elitist." Improved transparency and communication will be key component of any decarbonisation efforts. Integrating sustainability thinking into government strategy also has the added benefit of a positive, inspiring message that, if carried out properly, can boost government popularity.

A well thought out and designed strategy for a shift to green energy and energy efficiency would have manifold benefits. First of all, it would focus all public and private sector actors on a clear, coherent and shared goal. Importantly, it would help to improve energy

security. It would also create long-term public savings, as once a country becomes energy self-sufficient, it can save the money it has been spending on energy imports from abroad. Choosing energy sources that in the medium to long-term can survive without subsidies means future public spending savings and improved inter-generational equity. Cleaner energy sources also have the added benefit of improved public health and less pollution-related mortality, improving productivity and GDP growth. In addition, more climate ambition can also be a source of national pride, especially if political leadership builds on people's shared [sense of national identity](#) to create a commitment to action, helping to create attitudinal shifts in favour of green growth.

The current perception in the Visegrad region is that of a zero-sum game, in which Western European countries taking lead on decarbonisation stand to benefit from it more than Central and Eastern Europe. This perspective misses the bigger picture: that decarbonisation can bring tangible benefits to society at large, and that it can be used strategically to tackle a range of issues: inequality, unemployment, energy security and both economic growth and competitiveness. It is key to look beyond old silos and to apply a sustainability filter to public policies and especially to post-Covid19 fiscal stimulus. Sustainability should be [hard-wired](#) into the national legislative and policy making processes, helping the countries to take advantage of the green shift rather than to resist it.

The benefits are real, and in a post-Covid19 world so are the opportunities for financing a meaningful change.

This analysis was produced within the Think Visegrad Non-V4 Fellowship programme.

Think Visegrad – V4 Think Tank Platform is a network for structured dialog on issues of strategic regional importance. The network analyses key issues for the Visegrad Group, and provides recommendations to the governments of V4 countries, the annual presidencies of the group, and the International Visegrad Fund.

For more information about Think Visegrad and its members visit www.thinkvisegrad.org



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