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JEAN PISANI-FERRY SAYS THE UKRAINE WAR WILL HAVE SIGNIFICANT IMPACTS ON THE EU

CLIMATE CHANGE MITIGATION IN EUROPE. AKGÜÇ *ET AL* DISCUSS THE SOCIAL DIMENSION

THE GLOBAL GATEWAY. SIMONE TAGLIAPIETRA SAYS EUROPE WILL BE STRONGER GLOBALLY

THE GLOBAL TRADE AND FINANCE PLATFORM

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A new Thessaloniki offer

Georgia, Moldova, and Ukraine have aspirations to join the European Union. Marek Dabrowski believes the EU should grant candidate status as part of a long-term stabilisation strategy

On Monday 28 February 2022, Ukraine's President Volodymyr Zelenskyy, Prime Minister Denis Shmygal and Speaker of Verkhovna Rada (Ukraine's parliament) Ruslan Stefanchuk signed an application for Ukrainian membership in the EU and asked for *"immediate accession via a new special procedure."*

Their request was repeated the next day when President Zelenskyy spoke via videolink to a plenary session of the European Parliament. The Parliament backed the request in a resolution of 1 March on the Russian aggression against Ukraine, calling for *"the EU institutions to work towards granting EU candidate status to Ukraine, in line with Article 49 of the Treaty on European Union and on the basis of merit, and, in the meantime, to continue to work towards its integration into the EU single market along the lines of the Association Agreement."* The President of the European Commission also responded positively to Ukraine's aspirations, saying *"They are one of us and we want them in."*

Following Ukraine's application, two other Eastern Partnership (EaP) countries – Georgia and Moldova – announced their applications for EU membership.

These three applications should surprise nobody. All three countries declared their geostrategic interest in joining the EU already in the early or mid-2000s. All three have been victims of the imperial policy of Putin's Russia by being invaded by the Russian army (Georgia in 2008, Ukraine in 2014-2015 and now) and/or by losing control over parts of their territories (Transnistria in Moldova; Abkhazia and South Ossetia in Georgia; Crimea and one-third of Donbas in Ukraine, plus territories occupied in the current war).

They want to anchor their independence and the chance of peaceful development in the Euro-Atlantic security alliances and the European integration system. They also seek external anchors (incentives) for their domestic economic, political and economic reforms. The previous European Economic Community/EU enlargement rounds since the 1980s demonstrated that the accession process can play this role effectively.

All three countries have Association Agreements with the EU (signed in 2014), including Deep and Comprehensive Free Trade Area (DCFTA) provisions, and they are advanced in their implementation. Citizens of the countries can travel without visas to the EU (citizens of Moldova since 2016; citizens of Georgia and Ukraine since 2017).

How should EU countries react to these applications? The decision to grant EU candidate status and start membership negotiations requires unanimity. It is no secret that, for various economic and political reasons, the political appetite for further EU enlargement has declined since Croatia acceded in 2013.

The EU also has essential homework to do. Once again, it must reform its institutions and decision-making process. Further expansion of qualified majority voting and reduction of the list of decisions that require unanimity is the most urgent component of such reform

This is seen in the slow accession process of the Western Balkan countries. All three new applicants have income-per-capita levels far below the EU average. They suffer from immature institutions, poor business climates, corruption (except Georgia) and unresolved territorial problems (see above).

These circumstances may discourage some EU member states, especially those further away from eastern Europe, from responding positively. Reservation was signalled by the President of the European Council Charles Michel, who spoke about *"different opinions and sensitivities"* among EU countries in relation to Ukraine's application.

However, the lack of positive response or up-front rejection of membership applications would be a strategic mistake at the current critical juncture of European history.

First, it would go against the spirit and letter of Article 49 of the Treaty on the European Union (TEU), which says that *"…any European State which respects the values referred to in Article 2 and is committed to promoting them may apply to become a member of the Union."*

Second, it would mean the EU reneging on its goals of establishing an area of stability and prosperity in its direct neighbourhood.

Third, it would discourage applicants from reforming their states and economies. And for Ukraine now, it would undermine the morale and determination of its leaders, army and the entire society to resist aggression.

Fourth, it would disregard the existing strong economic ties between the three EaP countries and the EU. The EU is their largest trade partner. In 2020, it accounted for 52.3% of the total trade of Moldova, 39.2% for Ukraine and

22.4% for Georgia. Trade reorientation towards the EU helped these countries, particularly Ukraine after 2014, to neutralise the adverse effects of Russian trade protectionist measures applied against them.

The EU is also a significant source of incoming foreign direct investment to Georgia, Moldova and Ukraine. The EU accession process would help consolidate these ties and contribute to the modernisation of all three economies.

There is a relevant precedent after the series of tragic conflicts in the former Yugoslavia in the 1990s. In June 2003, the EU summit in Thessaloniki expressed *"unequivocal support to the European perspective of the Western Balkan countries."* It also declared that *"the future of the Balkans is within the European Union."* It opened the process of European integration for this region.

Although today, almost two decades after this declaration, only Croatia is an EU member, four other countries (Albania, Montenegro, North Macedonia and Serbia) have EU candidate status. Montenegro and Serbia are in accession negotiations.

Despite the slow pace and various shortcomings of the accession process in the Western Balkans, it has stabilised the region politically and has incentivised economic and institutional reforms in individual countries.

Of course, EU accession must take time, especially for less economically and institutionally developed candidates. It will not happen immediately, as President Zelenskyy would like to see.

Time is needed to meet the Copenhagen criteria of EU membership, adopt all the *acquis communautaire*, and negotiate technical and institutional aspects of its implementation.

The speed and outcome of this process usually depend on the political determination of a candidate country and its ability to implement all the required reforms and legal harmonisation, and the goodwill of EU countries that have legal power to block accession at each stage.

Unfortunately, this power is sometimes overused, as in the case of North Macedonia, which obtained candidate status in 2005 but had to wait for a long time to start membership negotiations because of obstruction on the part of some of its neighbours. Such practices may derail the entire EU accession process and deprive it of its motivational character.

The EU also has essential homework to do. Once again, it must reform its institutions and decision-making process (the last time it was done in the Lisbon Treaty signed in December 2007). Further expansion of qualified majority voting and reduction of the list of decisions that require unanimity is the most urgent component of such reform.

Too often, the current EU becomes a hostage to individual countries' veto powers, for example, in the areas of the Common Foreign and Security Policy, Multiannual Financial Framework, or EU enlargement. Increasing the number of member states without fixing this problem would complicate the situation further.

The three new applicants have one advantage that most Western Balkan countries (except Croatia) did not have in 2003: the functioning Association Agreements, including their economic and trade components, which have already required adoption of a substantial part of the acquis.

Repeating the 2003 Thessaloniki type offer to the three EaP countries and starting their EU accession path would not determine the outcome or timing, both of which would be dependent on the progress in adopting the acquis.

It would not also prevent various intermediate solutions, such as further deepening trade and investment relations (especially in agriculture and service sectors), or closer political association in the meantime, preferably by upgrading the existing Association Agreements. It would only help the long-term goal of EU integration. ■

Marek Dabrowski is a Non-Resident Fellow at Bruegel

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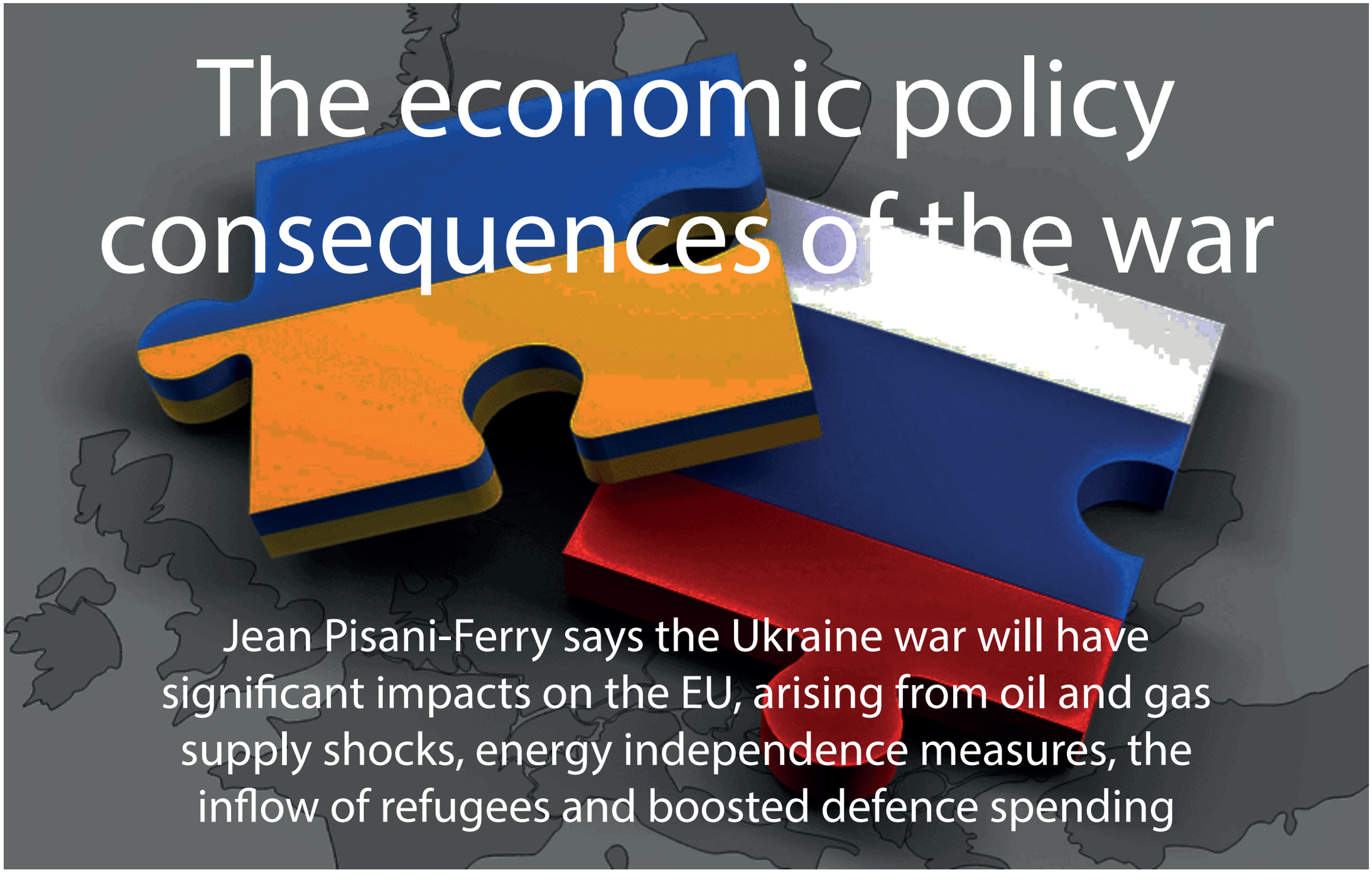
The economic policy consequences of the war



Jean Pisani-Ferry says the Ukraine war will have significant impacts on the EU, arising from oil and gas supply shocks, energy independence measures, the inflow of refugees and boosted defence spending

The European Union has responded to the war at its Eastern border with exceptional unity, resolve and speed. But the invasion of Ukraine is a watershed. Whatever the duration of the war, its legacy will be long-lasting. It will shape Europe's policy choices for the years and decades to come.

This post aims at providing a first assessment of the economic policy consequences of the invasion and the decisions taken since 24 February, when Russian troops entered Ukraine. The main immediate risks to the European economy arise from the supply shock triggered by the increase in oil and gas prices, from Europe's dependence on Russian energy and from the impact of geopolitical threats on household confidence and investors' sentiment.

Europe also has the duty to welcome millions of war refugees and provide them with emergency assistance. In 2022 already, the direct budgetary impact of the corresponding decisions could amount to 1.1/4% of GDP, if not more. Longer-term, the EU is confronted with the need to boost defence spending in response to aggravated security threats and to rethink its energy system.

The upshot is that policymakers in Europe must pivot away from the expected post-COVID-19 normalisation and to join forces to tackle new emergencies. Longer term, they face a wholesale rethink of the EU policy system, which will affect budgetary priorities, principles for macroeconomic policies and market regulation and the division of tasks between the EU and its member states.

For the purposes of this post, many other channels, from the confidence shock to ripple effects on agricultural supplies and commodities markets, are left aside. I do not address either the broader, and critical, question of the potential fragmentation of the global economy that could result from the realisation that the 'weaponisation of interdependence' is no longer a matter for mere speculation.

Orders of magnitude provided in this blog post are extremely rough. They may prove wrong by a significant margin. The aim here is only to contribute to a discussion that must develop and will certainly result in much more accurate assessments.

1. Responding to a new supply shock

On the eve of the attack on Ukraine, the EU was already coping with a sharp deterioration of its terms of trade and with rising inflation, most of which was attributable to the price of imported energy.

Jean Monnet famously wrote that "Europe will be forged in crises and will be the sum of the solutions adopted for those crises." We now understand that his prediction should be read literally

Although recovery from the pandemic shock is still incomplete and inflationary expectations are still somewhat below target, the European Central Bank was facing a difficult balancing act between looking through temporary price hikes and addressing the inflationary threats. The confrontation with Russia implies a more pronounced and longer-lasting shock, which will seriously aggravate the prevailing policy dilemma.

The standard rulebook when facing a commodity price shock is that the central bank should essentially tackle the second-round effects and avoid a potential escalation of inflationary expectations. It should not embark on a futile attempt to control the immediate impact of price rises on aggregate inflation (on which increases in the policy rate have very limited bearing, if any), and it should accommodate permanent relative price changes.

In the very short term, the ECB is likely to wait and see until it takes a decision. But it may soon be forced to make a politically difficult choice between tolerating headline inflation remaining above target for longer, and weakening the economy in the midst of a geopolitical confrontation. Its action will be further complicated by the risk that the spreads on government bond markets might widen.

As argued by Olivier Blanchard, in this situation a case can be made for a partial fiscal offset of the shock. In most EU countries, initiatives have been taken already. Governments have introduced a raft of measures to contain the rise in prices and to support vulnerable households.

But the question is whether governments should rely primarily on transfers (which can be targeted but do not contribute to limiting inflation) or should also intervene through across-the-board tax cuts and administered price controls (which affect the consumer price index and therefore facilitate the task of the central bank, but are much more costly budget-wise and obliterate the price signal). In some EU countries at least, both types of measures are being implemented.

The war context will push governments toward implementing more direct price interventions than they would normally consider. An important issue is whether the EU will revise the mechanism that leads to electricity being priced on the basis of the cost of the marginal energy source, which acts as a powerful transmitter of shocks to the price of gas and creates massive rents for electricity producers.

Some governments, for example in Spain, have introduced clawbacks. Others, like in France, have capped price rises. Whatever the discussion on the intrinsic merits of the electricity-pricing system in place in the EU, there is now a case for a rethink in a context in which inflation acceleration is a major concern. Unplugging this mechanism temporarily (for, say, six months) would alleviate pressing macroeconomic policy trade-offs.

More generally, the war will inevitably lead the EU and national states to depart from standard policy assignments. It will prompt further steps into a messy world in which governments interfere with markets for security reasons and in which monetary and fiscal policy are strongly interdependent.

Coordination, rather than the clarity of the policy framework, will be the new motto. The COVID-19 crisis has already resulted in a move in this direction. Hopes for normalisation are most likely to be frustrated.

Fiscal support has and will have a significant impact on public finances. Measures introduced since summer 2021 already entail a non-trivial budgetary cost (0.5% to 1% of GDP in France, where the president is admittedly facing re-election). New measures in response to elevated energy prices could increase this cost further, perhaps to 1% of GDP.

2. Reducing energy reliance on Russia

Continued reliance on energy imports from Russia is in contradiction with the strategy of cutting off the aggressor

from international finance and payments. At prices somewhat below current levels ($100/bl for the Brent and €100/MWh for the gas), oil and gas quantities exported by Russia to the EU in 2019 would be valued about €200 billion each, in total roughly twice as much as foreign exchange reserves held in G7 countries at end-2021. It is imperative to curtail this income stream.

What would be the point of preventing the Bank of Russia from accessing its reserves if Russia continues to benefit from much-inflated export income? Energy carve-outs actually protect the largest part of the Russian banking system from being excluded from SWIFT. All in all, record export income flows are currently entering Russia despite the discount on the price of oil it sells abroad.

Russia is the EU's main supplier of oil (27% of imports, 2019 data), coal (47%) and gas (41%). Oil and coal do not require special infrastructure to be delivered to the market. They can be put on a boat and shipped to wherever there is a buyer. Gas, however, is critical because trade depends on infrastructure, meaning that neither the supplier nor the buyer can diversify seamlessly.

A global ban on Russian oil imports is being discussed. The question is whether an effective curtailment of Russian sales would result in the price ratcheting up on the global market, which would add to the global supply shock and possibly frustrate the sanctioning effect of the measures taken. A ban can only succeed if cuts in Russian shipments are offset by supplementary exports from other producers.

For gas, Europe and Russia are set to play a game of chicken over their mutual dependency. Russia certainly has leverage. If it were to discontinue exports, the EU would lose 40% of its natural gas supplies. The impact on some EU countries would be catastrophic.

This is why Brussels has so far left gas outside the scope of sanctions. But the EU has two assets: Russian gas imports represent only 8.4% of its total demand for primary energy, and it has more capacity to diversify its sourcing than Russia has to diversify its exports markets. Anyhow the EU must prepare to manage without Russian gas, because not planning for such an occurrence would expose it to Russian blackmail.

Shipments from Russia to the EU amounted to 1800 terawatt hours (TWh) in 2019 (2020 and 2021 were abnormal years), out of a total of 3800 TWh of natural gas imports. But the EU also needs to replenish its reserves, which are running very low.

Even if it cuts overall gas consumption by one-fifth and limits the replenishment of reserves to 500 TWh, it will need to import some 3400 TWh in 2022. If gas stops flowing from Russia (either at EU or Russian initiative), imports from other sources would have to increase by 35%.

Replacing Russian gas is feasible but hard (as the IEA and Bruegel have shown). To start with, it is bound to be costly in the short run, especially if – as for oil – cutting off the leading gas exporter from the global market results in further price escalation. For an EU ban on imports from Russia to be effective, it would need to be designed in a way that takes into account spillbacks onto the global market.

Put differently, Europe would need to reduce its demand for imports by increasing the supply from other sources (by delaying the closure of coal and nuclear plants and ramping up the deployment of renewables, for example) and by cutting domestic demand for gas (through dual pricing schemes for domestic heating) and other fuels (possibly through limiting speed on highways).

Assuming a halving of Russian gas supply and a 50% cost increase for new shipments by non-Russian suppliers, the extra bill would be €25 billion in 2022. Total gas imports would amount to €370 billion against €60 billion in 2019 and €170 billion in 2021.

The next difficulty has to do with intra-EU logistics. The impact of the shock will be very unevenly distributed: Portugal does not import any Russian gas, whereas its share in total primary resources is 35% for Hungary and 24% for Slovakia. The potential for enhancing LNG terminals is also unequally distributed (Spain has significant capacity, landlocked countries have none), while interconnections are patchy (there is not a European gas pipelines system to speak of).

Emergency remedial action will therefore be needed to enhance existing facilities, organise immediate supplies and launch emergency investments. It is hard to put a number on these initiatives. Assuming they would also increase the cost for the end user by 50%, the price tag would be another €25 billion.

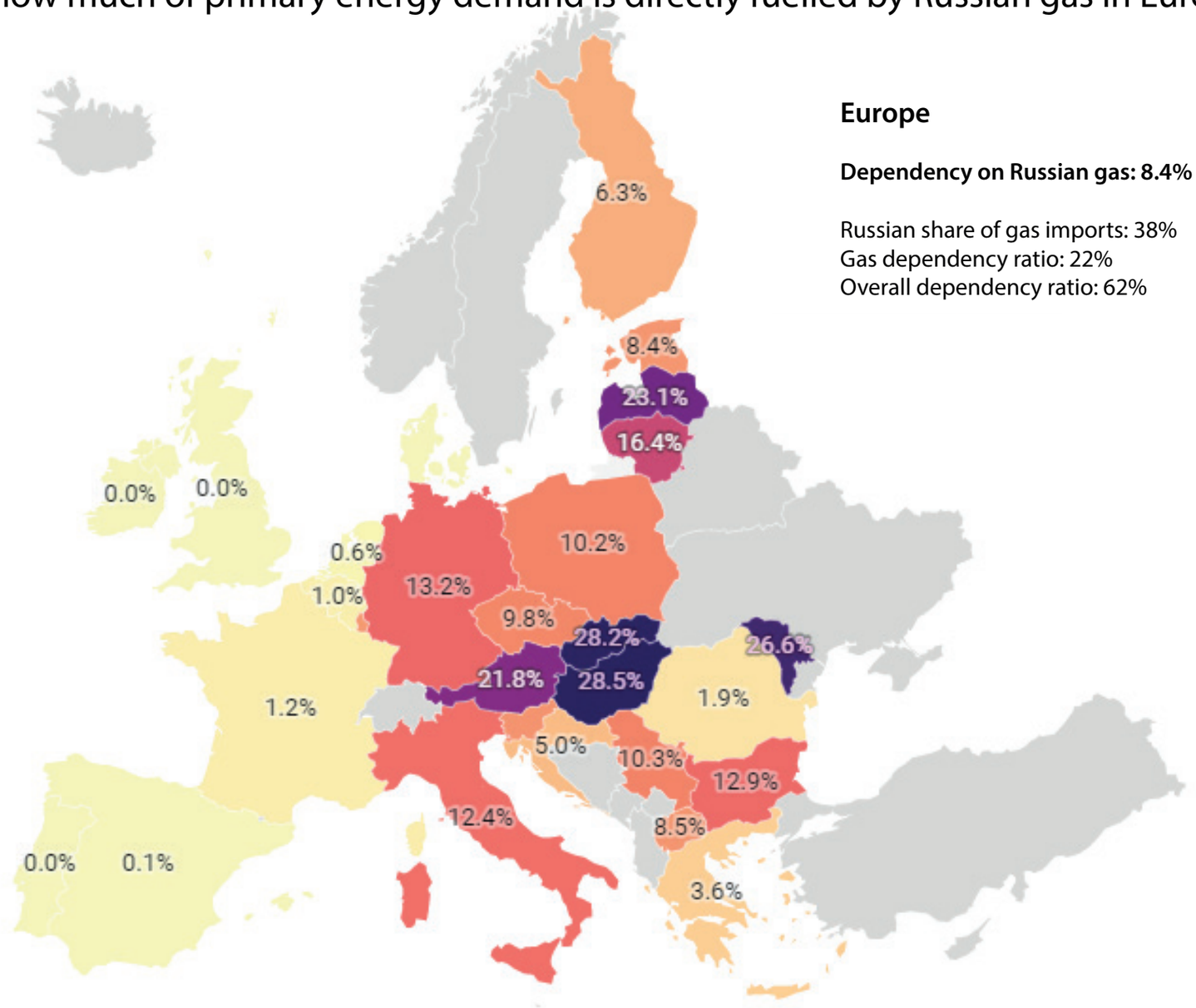
On this basis the short-term cost of reducing energy dependence on Russia could amount to €100 billion (€50 billion to rebuild reserves plus €25 billion extra cost of non-Russian supplies plus €25 billion to organise distribution within the EU).

The questions then are: first, how much of it would be borne by private companies and end-users, and how much would have to be borne by public finances; second, how should this cost be shared between individual member states and the EU?

In an emergency situation, when security is at stake and against the background of heightened risk aversion, governments will step in to direct responses to shortages, threats and risks, and it is prudent to assume that the

Mapping European dependency on Russian gas

How much of primary energy demand is directly fuelled by Russian gas in European countries ?



Europe

Dependency on Russian gas: 8.4%

Russian share of gas imports: 38%
Gas dependency ratio: 22%
Overall dependency ratio: 62%

The gas dependency ratio is the share of gas imported from Russia over total gas imports, weighted by the share of net imports of gas over total Gross Inland Consumption.
Gross Inland Consumption (GIC) includes consumption by the energy sector, distribution/transformation losses, final energy consumption by end users, and 'statistical differences'. It thus accounts for "gross demand for energy".
Hence, overall dependency is simply net imports of all energy sources over GIC, and gas dependency is net gas imports over GIC.
We use Eurostat 2019 data for net imports of energy and GIC, and Bruegel 2021 data for the share of gas imported from Russia, due to a lack of data on Russian imports for some key countries in Eurostat (among which Ukraine).
Map: Thomas Belaich Source: Eurostat, Bruegel. Get the data Created with Datawrapper

financing burden will fall disproportionately on public finances. Private companies are neither in charge of security of supply, nor of making sure that all households have access to heating.

Even part of the building up of reserves, normally a purely private task, will need to be publicly financed: private companies will be reluctant to shoulder the cost of replenishing reserves (€50 billion), because they would risk losing considerable amounts of money if the price of gas normalises. It is therefore reasonable to assume that taxpayers' money will need to bear three-quarters of the cost, or €75 billion.

Part of this burden will need to be shared within the EU despite the fact that, while it is true that dependency on Russian gas is a legacy for central and eastern Europe, for Germany or Italy it is the product of a deliberate choice. But to reject solidarity in the name of moral hazard would be far-fetched.

After the euro crisis shock and the COVID-19 shock, the fallout from the economic confrontation with Russia is yet another, hardly predictable, asymmetric shock. Cost-sharing is called for, as it was for the COVID-19 crisis. Tight coordination is also called for, unlike what happened in response to the pandemic.

In the medium term, the EU will have to design and finance a wholesale rebuilding of the European energy system that will include the diversification of supply sources, stronger interconnection and the definition of contingency plans for responding to supply disruptions. In so doing, it will need to give significantly more weight to its security objective than in the initial design of the electricity market.

Because of a pervasive lack of trust among EU countries, collective energy security was for a long time a topic for speeches rather than for action. The time has come to rethink and build an efficient and secure energy system that

makes the best of comparative advantage and treats energy security as a club good. This will require significant investment.

For the immediate future, the upshot is that, whereas the EU cannot realistically dispense with Russian gas altogether, it can immediately prepare to lower its reliance on it, invest in diversification and commit to a stepwise reduction of its imports (as done in the past with Iran). This policy is bound to entail a significant short-term economic cost, but it is the condition for winning the game of chicken with Russia.

3. Tackling the refugee crisis

The refugee crisis is developing fast. In only ten days, nearly two million people have arrived in Poland and other central and eastern European countries. The number will rise further. The long-term cost of welcoming refugees is likely to be negligible, as they may either return to their home country or quickly integrate into the European labour market. But in the short term, they need food, accommodation, healthcare and education for children.

Estimates of the corresponding cost, for example by the UNHCR, are relatively low. Experience shows, however, that costs can quickly mount: in Germany budgetary expenditures on refugees reached €9 billion in 2016, for about 750,000 applicants. If allowances are put at €10 billion per million refugees per year, the cost could easily reach €30 billion in 2022.

This cost cannot be borne by the host countries, which are relatively less developed. It will need to be mutualised, mostly through the EU budget and additionally by international agencies such as the UNHCR, as well as charities.

4. Engineering a surge in defence expenditures

The EU has already unlocked immediate support to the Ukraine, with a first €500 million military assistance package

(to which bilateral aid should be added). More is likely to be needed in the coming weeks, even if the war ends soon.

Much more importantly from an economic standpoint, Germany has committed to an increase in its defence budget, first through the setting up of a €100 billion debt-financed fund (close to 3% of GDP) and more lastingly through a tax-financed increase in defence spending from 1.4% to 2% of GDP.

Other EU countries, with defence budgets close to 1.5% of GDP on average, are in similar situations and are likely to follow suit. France is an exception with 2.1% of GDP already. But this includes the cost of nuclear forces. France also will need to increase the budget for conventional forces.

Assuming no direct military involvement in the conflict in Ukraine but a gradual ramping up of the defence effort, additional military spending in the EU could easily reach €20 billion in 2022 and twice as much in 2023. The cost will certainly be higher in the medium term. The likely minimum increase in defence spending should be 0.5% of GDP or €70 billion, from 2024-2025 onwards.

Significantly more is a distinct possibility: in many European countries, the defence budget represented about 3% of GDP in the 1980s. It remains to be decided which part of this surge will be financed by taxes, and which by debt.

As things stand, most of this cost will be borne by national budgets, but the EU will also need to step in, at least for the financing of research and development programmes. Potentially stronger involvement of EU public finances will depend on political decisions on whether and how to establish a common European defence policy.

5. A significant transformation and a major budgetary impact

In response to an acute security crisis, the EU and its constituent member state now need to:

- Alleviate the price and income consequences of a new and major supply shock;
- Start reducing imports of Russian gas, while rebuilding inventories for next winter;
- Launch an emergency energy resilience plan to increase non-Russian energy supplies and distribute them within the Union;
- Integrate energy systems much more strongly and build a collective energy security doctrine;
- Mutualise the cost of welcoming refugees from Ukraine;
- Ramp up defence spending and lay the foundations for a common defence policy.

These tasks only are only part of a major endeavour that will test the capacity of Europe to act swiftly and decisively, but also to embark on the provision of new public goods it previously had no responsibility for, and to organise solidarity.

The medium-term implications are also of a first order. So far, the expectation in the EU was that decarbonisation, digitalisation and resilience investments would dominate the medium-term agenda. Security – both economic and defence security – is now added to this agenda.

A rough, back-of-the-envelope assessment of the corresponding short-term direct budgetary cost for the EU and its members could sum up to:

- An additional €50 billion to contain the domestic price consequences of an aggravated supply shock;
- €75 billion on energy independence;
- €30 billion on refugees and humanitarian assistance;
- €20 billion on security and defence in 2022, and twice as much in 2023.

All in all, total discretionary spending and tax cuts could represent €175 billion or about 1.1/4% of GDP in 2022. Further expenditures are called for in the medium term, especially on energy security and defence. They could represent at least half a percent of GDP per year.

Part of the burden will fall on the member states (especially for price interventions, targeted transfers and defence). Together with the adverse macroeconomic shock, these additional costs will disturb the structural consolidation planned for 2023 and beyond. In its 2 March fiscal policy guidance, the European Commission remained cautious. The EU will certainly need to postpone the de-activation of the general escape clause of the Stability and Growth Pact that was initially envisioned for 2023.

At the same time, the adverse shock, heightened risk aversion and a discount on European assets are likely to aggravate public debt-sustainability concerns in the most fragile member states. The EU's fiscal framework – and

national frameworks, such as the German *Schuldenbremse* – must be made flexible enough to make room for new priorities, but the need for fiscal responsibility is more acute than it has ever been.

The challenge is also significant for the ECB. It will need to avoid tightening prematurely, but also retain flexibility in the allocation of asset purchases, if it wants to prevent a widening of sovereign spreads.

Part of the new programmes – especially for the refugees and the redesign of the energy system, and probably in part for defence also – will need to be administered and financed by the EU, for which they will represent a significant addition to its current role and budget.

Existing vehicles, including the Next Generation EU package adopted in response to the COVID-19 shock, offer some immediate flexibility to reallocate funds. A new EU budget that should put much more emphasis on European public goods, and a new off-budget package to finance the pressing ramping up of energy security, humanitarian assistance and joint defence expenditures, may soon be indispensable. The experience with Next Generation EU (NGEU), the off-budget scheme launched in 2020 in response to the COVID-19 crisis, provides a basis for designing the latter, though it will most probably be less redistributive.

Europe is facing a rethink of its *Weltanschaung*, its priorities and its policy framework. Jean Monnet famously wrote that *"Europe will be forged in crises and will be the sum of the solutions adopted for those crises."* We now understand that his prediction should be read literally. ■

Jean Pisani-Ferry is a Senior Fellow at Bruegel

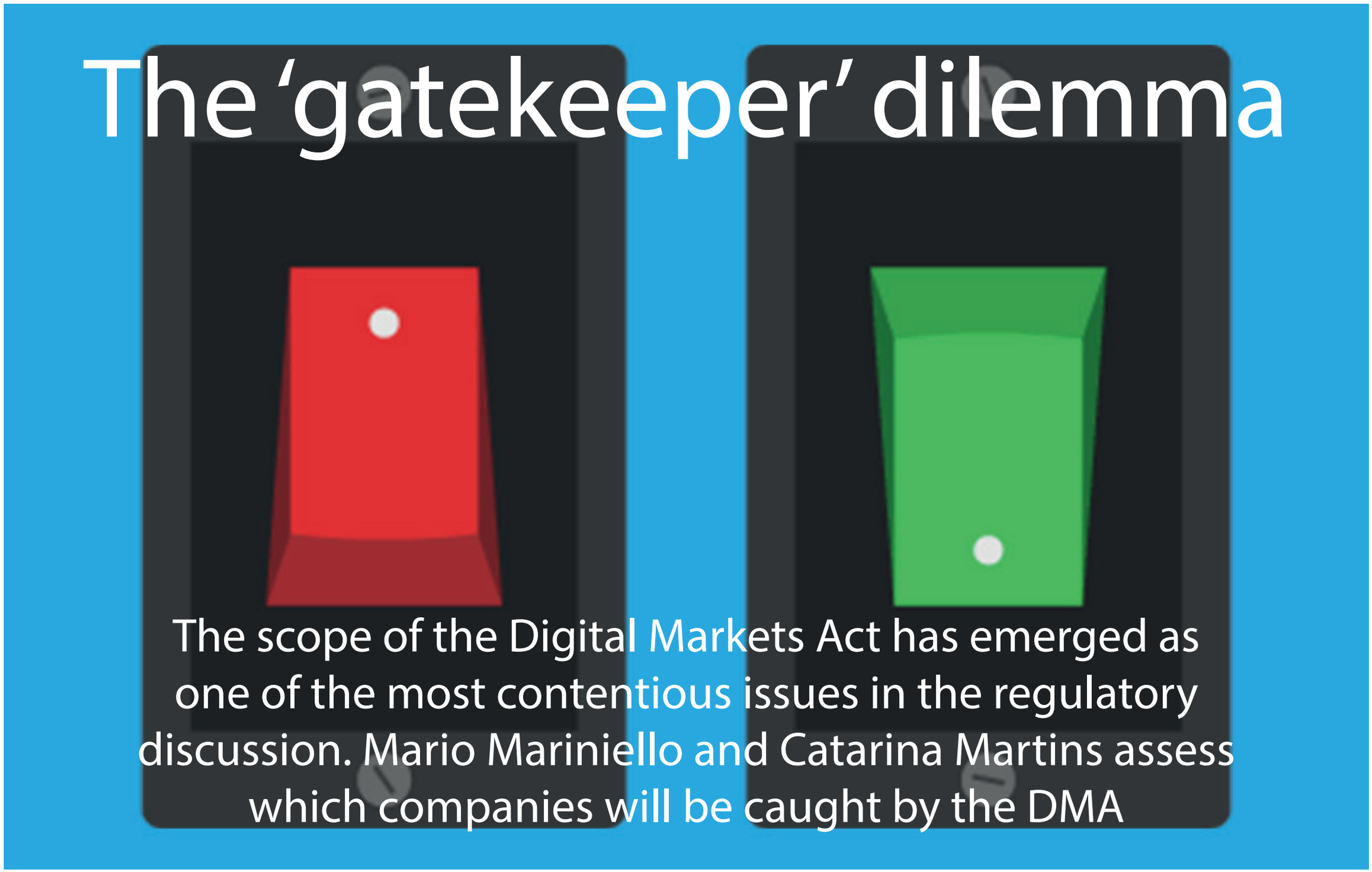
I am grateful to all colleagues, especially from Bruegel and PIIE, who provided feedback on an earlier version of this article. Many thanks to Thomas Belaich for painfully thorough research assistance. The usual disclaimer strongly applies: all errors are mine only. This article was originally posted on Bruegel.

Appendix: Technical assumptions for the gas market

	2019	2022
Quantity balances (TWh)		
Final domestic demand	4,500	3,600
Inventories replenishment		600
Total domestic demand	4,500	4,100
Domestic production	675	675
Imports	3,825	3,425
Russia	1,800	800
Non-Russia	2,025	2,525
Euro balances		
Gas price (€/MWh)	15	100
Standard import bill (€ billion)	57	343
Extra cost of alternative sourcing (%)		50
Additional bill (€ billion)		25
Total import bill (€ billion)	57	368

The table details the assumptions made in the text on the gas market balances. Data for 2019 serve as bases for hypothetical 2022 projections.

The ‘gatekeeper’ dilemma



The scope of the Digital Markets Act has emerged as one of the most contentious issues in the regulatory discussion. Mario Mariniello and Catarina Martins assess which companies will be caught by the DMA

The European Union Digital Markets Act (DMA), proposed by the European Commission in December 2020 to regulate the 'gatekeepers' of the digital world, is making progress towards finalisation. The law, in the form of an EU regulation, could take effect in 2022.

At the risk of oversimplifying, the DMA can be analysed by two main criteria: (a) its scope, ie. which companies will be considered 'gatekeepers'; and (b) the obligations and restrictions gatekeepers will have to abide by (for a backgrounder, see here).

To be clear, the scope and obligations are interrelated: obligations are tailored to address competitive concerns that arise only if a company is big enough to hold a high degree of market power. But the DMA's scope has emerged as one of the most contentious issues in the regulatory discussion. We thus focus on the definition of a 'gatekeeper', while taking the set of DMA rules as proposed by the European Commission as given.

The DMA definition of 'gatekeeper'

A gatekeeper is a de-facto digital market bottleneck: EU businesses and consumers find it hard to avoid gatekeepers. According to the Commission's DMA proposal, a gatekeeper must operate a 'core platform service' (CPS). The CPS list includes:

- online intermediation services,
- online search engines,
- online social networking services,

- video-sharing platform services,
- number-independent interpersonal communication services,
- operating systems,
- cloud computing services,
- advertising services provided by a provider of any of the services listed before.

... the DMA's scope has emerged as one of the most contentious issues in the regulatory discussion

A CPS provider may qualify as a gatekeeper if it meets three qualitative criteria. A gatekeeper:

1. *"(…) has a significant impact on the internal market;*

2. *it operates a core platform service which serves as an important gateway for business users to reach end users; and*

3. *it enjoys an entrenched and durable position in its operations or it is foreseeable that it will enjoy such a position in the near future."*

The DMA further defines quantitative criteria for gatekeepers:

6. *"the undertaking to which it belongs achieves an annual EEA turnover equal to or above €6.5 billion in the last three financial years, or where the average market capitalisation or the equivalent fair market value of the undertaking to which it belongs amounted to at least €65 billion in the last financial year, and it provides a core platform service in at least three member states;*

7. *it provides a core platform service that has more than 45 million monthly active end users established or located in the Union and more than 10,000 yearly active business users established in the Union in the last financial year;*

8. *the thresholds in point (b) were met in each of the last three financial years."*

The Commission has not disclosed the thinking behind these thresholds. However, a reading of the Digital Markets Act Impact Assessment support study annex, which reported an analysis of various quantitative indicators[1] for 19 digital firms[2], shows three things:

(1) the exercise carried out by the European Commission was subjective. There is no magic economic formula that would suggest that these are the optimal quantitative thresholds that maximise the efficacy of the restrictions and obligations imposed by the DMA.

(2) The approach applied by the European Commission was most likely based on a *backward induction* process: the Commission had a rough idea of the companies that the DMA should capture, it then crafted the thresholds accordingly, to be sure the bigger players would be included.

(3) Finally, the Commission had to make a clear trade-off: too-high thresholds would limit the impact of the DMA because companies with strong market leverage and capable of limiting competition in digital markets could fall out of scope; too-low thresholds would, however, entail high costs, for example burdening companies with compliance duties when they do not restrict competition in the digital market, or increasing pressure on resource-constrained public enforcers.

Experts weigh in

The Commission attempted to reconcile points (1) to (3) by including a review clause in the proposed DMA. According to the proposed DMA Art. 4 and Art. 15, the Commission may revise the list of gatekeepers and conduct market investigations.

Essentially, the Commission can establish that a company not meeting the *quantitative* criteria (a) to (c) may still be considered a gatekeeper if it meets the *qualitative* criteria (A) to (C).

Various suggestions have been made about how to refine the gatekeeper identification process. Table 1 summarises the most significant (we report whether the contribution was backed by a specific market player or, where relevant, the author's affiliation). Economists and lawyers would tend to agree with the qualitative criteria. That is no surprise: the qualitative criteria are deliberately general and vague.

Criticism from the competition policy community has mainly focused on the proper quantitative criteria to use, to ensure that the qualitative thresholds are met.

One of the most common criticisms of the Commission's proposal is that it does not take the user or business's ability to use multiple platforms for the same purpose into account. Take for example, hotel reservations: the user can look for prices and book a room on various available platforms, or directly on the hotel's website; and the hotel can offer its rooms via the same channels.

The extent to which this so-called multi-homing happens and the costs of doing so are measures widely considered in the platform economics literature to assess the entrenchment of market power. If customers can multi-home, they are more likely to escape conditions imposed by one platform by increasing the use of a competing platform.

The ability to multi-home has been proposed as a gatekeeper criterion, using quantitative metrics such as the degree of dependence on referral traffic from major search engines, social media and advertising, and the extent of multi-homing by users on each side of the market.

For instance, the low switching costs for users of e-commerce or ride-sharing platforms allow for a greater degree of multi-homing than possible for mobile operating systems, which implies purchasing a new device.

Another critique relates to the inherent differences in business models. There cannot be a universal definition of gatekeeper and a general set of rules they should follow: the identification of gatekeepers and respective obligations that derive should take into account companies' business models (for more information, see here, here and here).

Christina Caffarra and Fiona Scott Morton (January 2021) identified roughly three groups of platforms with significantly differing business models: ad-funded digital platforms (including Google, Facebook and Twitter), transaction/matchmaking platforms (including Uber, Airbnb and Amazon), and operating system ecosystem platforms (including operating systems and app stores). The inherent differences between these groups mean that they deploy different strategies to defend their market positions against new competitors.

Michael Jacobides (2021) went beyond the concept of business model and focused on the definition of platform power, which he claimed should be the starting point of any regulatory action. He said it was essential to, first and foremost, *"identify some simple, collectively agreed upon principles for establishing platform power and then consider what are the anti-competitive conducts and outcomes that require recourse."* Jacobides proposed a simple framework primarily based on a set of key questions in order to assess platform power[3].

In a 2020 paper, Tiago Prado, who also focused on the topic of market power assessment, used an economic model and concluded that the significant market power (SMP) regulatory framework, used in the telecommunications industry, would still be helpful to assess the digital platform market, subject to some finetuning and adaptation.

Heike Schweitzer (2021) argued that the quantitative thresholds used to designate gatekeepers do not offer any indication of the relevant threshold of bottleneck power. Even though useful to provide clear and immediately applicable guidelines, the absolute values and metrics chosen do not seem to accurately capture the (A)-(C) qualitative conditions.

Schweitzer pointed out that the turnover thresholds are met as long as the CPS provider is part of a large parent firm, regardless of its market power. Moreover, the number of users may not exactly reflect the absence of competition if users can multi-home, as explained above. The criteria seem overly focused on size rather than on actual gatekeeping power.

Teresa Ballell (2021) warned that the DMA does not clarify if the thresholds should be calculated for, and the designation applied to, each CPS – *service-based approach* – or if the focus should be on the provider of the CPS overall – *provider-based approach*.

She argued that a service-based approach would be preferable, since it could prevent unintended consequences hindering the entry of new competitors, which could already be large but not previously operating in the platform industry, and hence not acting as gatekeepers in that market.

However, a paper by the Tobin Center for Economic Policy at Yale warned about the downsides of targeting specific platforms when sometimes big players provide a large ecosystem of services from which gatekeeping power is hard to disentangle, and perhaps unfairly attributed to only a few of these platforms.

Additionally, large firms could have an incentive to break down their platforms into smaller, more specific services, which alone would not meet the quantitative criteria for designation.

Some authors discuss the definition of *core platform services* (CPS) as this indirectly affects the definition of gatekeepers and the DMA's scope. Schweitzer and the Centre on Regulation in Europe (CERRE) both claimed that the inclusion of some services, such as *messaging* and *cloud computing*, is unjustified, given their one-sided nature.

For instance, in a case in which a user contracts a cloud service to store information, there is user-platform interaction (single-sidedness) but not subsequent business-end user interaction via the platform (double-sidedness).

The Tobin Center paper interpreted this issue of one-sidedness as potentially worrying if it leads to the non-designation of certain platforms. This is because the second quantitative criterion establishing the thresholds for the number of users refers to both end-users and business users.

Oliver Budzinski and Juliane Mendelsohn looked at the CPS list from another perspective and claimed that there is an *under-inclusion* of services. They pointed out that the DMA treats differently competing services that differ solely on their business models (advertising-financed vs subscription-based).

An example could be the inclusion of YouTube (ad-financed) and not Netflix (subscription-based) as *video-sharing platform services* when there is empirical evidence that these services compete.

This could lead to discriminatory treatment, not because of alleged market power, but based on the choice of the business model. The Tobin Center recommended the inclusion of more services in the CPS list, namely web browsers and virtual assistants.

Ballell argued that the selected list of services might become outdated very quickly. Given the dynamic nature of the platform market, which is constantly transforming, a regulation defining a specific list of services *"might lack future-proof adaptability."*

Hence, while acknowledging that this could, to some extent, compromise the clarity and certainty of the scope of the DMA, the author saw higher benefits in, and recommended the implementation of, a functional definition of CPS, rather than simply a list-based definition. This functional definition could replace the entire list or be added as a general clause.

In addition to being more future proof, this functional definition could provide further clarity on the scope of the DMA in the overall framework of EU regulation on digital services, and prevent inconsistencies or misinterpretations.

Likewise, the Tobin Center paper took the view that the DMA could consider a definition of CPS focusing on core functions rather than the form – ie. type of platform – in which they are provided.

Finally, various authors flagged the risk that the DMA as proposed by the European Commission is over-inclusive (according to paragraph 148 of the Commission's summary impact assessment, between 10 and 15 core platform service providers would be captured).

The studies pointed out the advantages of focusing efforts and resources on the most noticeable and urgent contestability issues, especially given the novelty and complexity of this new regulation. The gatekeeper designation could then be broadened.

An alternative scenario considered by EU legislators, which would require the gatekeeper to provide a minimum of two CPS, would reduce the number of gatekeepers designated by the DMA to five to seven (we discuss this scenario below).

In fact, requiring a gatekeeper to provide at least two CPS would go in line with the recommendation of the Centre on Regulation in Europe, from November 2020, to add an additional fourth criterion to the definition of gatekeeper: the ability to orchestrate an ecosystem.

According to this recommendation paper, *"only the gatekeepers who are active in several connected markets and orchestrate an ecosystem could be subject to the prohibitions and the obligations of the DMA."*

The EU legislative process and the different proposals

The European Parliament will vote to adopt a position on the DMA on 15 December. In June 2021, MEP Andreas Schwab (the Internal Market and Consumer Protection (IMCO) parliament committee's rapporteur on the DMA), proposed higher quantitative thresholds than those proposed by European Commission.

Schwab would have raised the quantitative thresholds on EEA turnover and average market capitalisation of the undertaking from €6.5 billion to €10 billion and from €65 billion to €100 billion, respectively. It also suggested that at least two CPS by the same company had to meet the quantitative thresholds for the company to be identified as a gatekeeper.

Schwab's proposal triggered concern in the United States: it was seen as having been engineered so that the DMA's obligations would apply only to non-EU companies. This proposal was ultimately superseded during the European

Table 1. Summary of the discussion around the concept of gatekeeper

	Main criticism regarding the definition of gatekeeper	Details on the paper/author
Cabral et al (2021) Panel of Economic Experts	Suggestion to include objective, measurable proxies of multi-homing as part of the definition of entrenchment of a market power.	The European Commission's Joint Research Centre (JRC) established a Panel of Economic Experts on Platform Issues to produce an economic opinion on the DMA proposal.
Caffarra and FS Morton (Jan 2021)	The DMA should put more emphasis on understanding and differentiating between business models, since the gatekeeper role is dependent on the business model.	Cristina Caffarra has provided expert advice to various public authorities and courts in competition matters, and to digital firms including Apple, Amazon, Uber and Microsoft. Fiona S Morton worked on antitrust consulting on behalf of Apple and Amazon within the last three years.
Damien Geradin (Feb 2021)	Emphasis on the concept of single and multi-homing. It would provide a clearer measurement of 'dependency'.	Paper funded by Booking.com.
Francesco Ducci (Mar 2021)	Call for more tailored sector-specific frameworks. Classification of the gatekeeper and identification of obligations should be a joint process, since they inform each other.	Policy brief for the Chair Digital, Governance and Sovereignty of SciencesPo.
Michael Jacobides (Apr 2021)	Understanding and identifying the factors driving platform power is a necessary first step to classify gatekeepers and design regulations tailored at addressing the harm they cause.	The author is Chief Expert Advisor on the Digital Economy at the Hellenic Competition Commission.
CERRE (May 2021)	The gatekeeper definition is over-inclusive. Criteria to designate gatekeepers overly focused on size metrics. The list of CPS and the way to calculate the number of users should be fine-tuned. Multi-homing should be included.	Alexandre de Streel is Chair of the EU Observatory on Online Platform Economy and assessor at the Belgian Competition Authority. He has advised the European Commission and European Parliament on the regulation of online platforms. Richard Feasey is Inquiry Chair at the UK's Competition and Markets Authority.

Heike Schweitzer (May 2021)	Fine-tune list of CPS. Multi-homing as an important missing criterium to identify gatekeeper position. Quantitative definition of gatekeeper is fuzzy and far from clarifying the relevant threshold of power.	The author is a special advisor to Margrethe Vestager on challenges of digitalisation for competition policy, and Chairwoman of the Commission Competition Law 4.0 of the German Ministry for Economic Affairs.
Crémer et al (Aug 2021)	The gatekeeper definition could be narrowed. Definition of CPS could focus on core functions rather than the form in which they are provided. Ensure designation for one-sided platforms.	Jacques Crémer was a special advisor to Commissioner Vestager between April 2018 and April 2019, and has also advised clients including Microsoft, Google or Intel. Fiona S Morton – see above. Paul Heidhues has advised the UK Competition and Markets Authority. Amelia Fletcher was a Non-Executive Director on the boards of the Competition and Markets Authority, Financial Conduct Authority, and Payment Systems Regulator. Also, a member of the Enforcement Decision Panel at Ofgem and CERRE. Katja Seim was Chief Economist at the Federal Communications Commission from 2016-2017. Monika Schnitzer is a member of the European Commission's DG Competition Economic Advisory Group on Competition Policy.
Teresa Rodríguez Ballell (Aug 2021)	A functional definition of CPS is preferable to the list-based approach. A service-based approach should be used to designate gatekeepers - calculate thresholds for CPS rather than for the whole firm.	The author is a member of the Expert Group for the EU Observatory on the Online Platform Economy. Written as part of a Symposium held by the Max Planck Institute for Innovation and Competition to discuss the DSA/DMA Package.
Budzinski and Mendelsohn (Oct 2021)	List of CPS treats differently competing services, which have different business models.	

Source: Bruegel, based on Eurostat, national accounts. 2022 projections are from AMECO (which groups the entire corporate sector).

Parliament process (see below), but we consider it a relevant benchmark: it shows the impact that altering the scope of the DMA could have (Table 3).

The final agreement within the IMCO committee converged on quantitative thresholds of €8 billion turnover and €80 billion market capitalisation (subject to a plenary vote on 15 December 2021). IMCO has also endorsed the Commission's proposal to identify gatekeepers on the basis of the existence of one single CPS provided by the company.

However, the IMCO position envisages the concept of 'active user' to be replaced by users, with the calculation being done for the European Economic Area instead of for the European Union.

These adjustments make criterion (b) potential broader and more easily achievable since, even though three more countries would be added, it is enough to provide only one CPS to be potentially considered a gatekeeper and the calculation of the number of users is looser.

The IMCO position would also introduce an additional change in the third quantitative criteria. According to the Commission proposal, the thresholds for the number of users should be met over the last three years to reflect an entrenched and durable gatekeeper position. The IMCO position would reduce the fulfilment of the criteria on the number of users to two years.

The position adopted by the Council of the EU also suggests a few changes to the DMA proposal, but is generally more similar to the Commission's proposal[4].

Table 2. Differences in the positions on the quantitative definition of gatekeeper (Article 3, paragraph 2)

		European Commission proposal (Dec 2020)	Council of the EU position (Nov 2021)	Schwab proposal (June 2021)	IMCO position (Nov 2021)
(a)	Average market capitalisation in last financial year	≥ €65 billion	≥ €65 billion	≥ €100 billion	≥ €80 billion
		the last 3 financial years	each of the last 3 financial years	the last 3 financial years	the last 3 financial years
	Annual EEA turnover in	≥ €6.5 billion	≥ €6.5 billion	≥ €10 billion	≥ €8 billion
(b)	Provides a CPS in	at least 3 member states	at least 3 member states	at least 3 member states	at least 3 member states
	Number of CPS	one	one	two or more	one or more
	Number of end-users	> 45 million monthly active users	≥ 45 million monthly active users	> 45 million monthly active users for each CPS	> 45 million monthly users for each CPS
	Number of business users	> 10,000 yearly active users	≥ 10,000 yearly active users	> 10,000 yearly active users for each CPS	> 10,000 yearly users for each CPS
	Established or located in	the Union	the Union	the Union	the EEA
(c)	Meets thresholds in (b) in each of the last	3 financial years	3 financial years	3 financial years	2 financial years

Source: Bruegel, based on Eurostat, national accounts. 2022 projections are from AMECO (which groups the entire corporate sector).

Once a final parliament position on the DMA is in place, negotiations between the Council and the Parliament on a final text can start. The French presidency of the Council of the EU in the first half of 2022 is pushing for approval of the final DMA regulation during its term.

The success of the negotiations will also depend on agreement on which companies should be considered gatekeepers (other topics are also being extensively debated – for example, the extent of participation of National Competition Authorities – but we do not consider them here).

What the data tells us

Table 3 shows our best guess at which companies could be captured under each of the four gatekeeper definitions in Table 2, when taking into account market capitalisation, turnover and number of core platform services provided.

Data on the number of users for the European Union/EEA is still hard to find, which is why this criterion was not included in our analysis. Nonetheless, the thresholds for the number of end and business users are relatively similar across definitions, which allows for a sound comparison.

Of the 22 selected tech firms, 13 would fall within scope under all the four options. The 'GAFAM' (Google, Amazon, Facebook, Apple and Microsoft) are always classified as gatekeepers, while others are excluded in all cases either because of the non-provision of CPS (Netflix, Spotify) or non-fulfilment of criterion (a). Nine firms would be treated differently under at least one of the options.

The European Commission's originally proposed DMA would include more firms as gatekeepers (15), followed by the Council (13), then the IMCO position (12) and finally Schwab's proposal (7)[5]. The latter would leave out

Table 3. Designated gatekeepers when considering market capitalisation, turnover and number of CPS in the DMA

	Google	Amazon	Microsoft	Apple	Facebook	SAP	Oracle	Netflix	Airbnb	Twitter	Zoom	Spotify	Saleforce	Uber	Booking Holdings	Expedia	PayPal	eBay	Zalando	Yahoo (Verizon)	Slack	Vivendi
European Commission proposal	y	y	y	y	y	y	y	n	y	n	y	n	y	n	y	n	y	n	y	y	n	y
Council of the EU position	y	y	y	y	y	y	y	n	y	n	y	n	y	n	n	n	y	n	n	y	n	y
Schwab proposal	y	y	y	y	y	n	n	n	n	n	n	n	n	n	y	n	n	n	n	y	n	n
IMCO position	y	y	y	y	y	y	y	n	n	n	n	n	y	n	y	n	y	n	n	y	n	y

Note: The thresholds considered for each of the proposals were as follows, for EEA turnover and market capitalisation, respectively. For the EC proposal, €6.5 billion and €65 billion; For the Council proposal, €6.5 billion in each of the last 3 years and €65 billion; For Schwab's first proposal, €10 billion and €100 billion; For IMCO's final agreement, €8 billion and €80 billion. Note that the turnover figure specifically for the EEA is still challenging to obtain with the available data, but we tried to approximate it as much as possible. The criterion 'the presence in at least 3 member states of the EU' has been assumed as being always fulfilled since this is the case to the best of our knowledge. The number of CPS we considered for each firm can be seen in Table 4.
Source: Bruegel.

Table 4. Core Platform Services provided by selected companies

	Google	Amazon	Microsoft	Apple	Facebook	SAP	Oracle	Netflix	Airbnb	Twitter	Zoom
Online intermediation services	Google Play Store	Amazon eCommerce		App Store, Apple eCommerce	Facebook marketplace				Airbnb		
Online search engines	Google Search		Bing Search								
Online social networking services			LinkedIn		Facebook Instagram					Twitter	
Video-sharing platform services	YouTube				Facebook IGTV						
Interpersonal communication services			Skype MS Teams		Messenger WhatsApp						Zoom
Operating systems	Android		Windows	Mac OS iOS							
Cloud computing services	Google Cloud	Amazon Web Services (AWS)	Microsoft Azure			SAP IaaS/PaaS	Oracle Cloud				
Online advertising services	Google Display and Search Ad, YouTube Video Ad	Amazon Display and Search Ad, Twitch Video Ad	Bing Search Ad, LinkedIn Display Ad		Facebook Display Ad, Instagram Display Ad					Twitter Display Ad	

Note: The breakdown of the services provided by each firm and categorization into each of the CPS as suggested by the European Commission in the DMA was done to the best of our knowledge.
Source: Bruegel.

Table 4. Core Platform Services provided by selected companies cont.

	Spotify	Salesforce	Uber	Booking Holdings	Expedia	PayPal	eBay	Zalando	Yahoo (Verizon)	Slack	Vivendi
Online intermediation services			Uber Uber Eats	Booking.com	Expedia.com	PayPal	eBay eCommerce	Zalando eCommerce			
Online search engines									Yahoo Search		
Online social networking services											
Video-sharing platform services											Dailymotion
Interpersonal communication services										Slack	
Operating systems											
Cloud computing services		Salesforce									
Online advertising services				Booking Search Ad	Expedia Search and Display Ad		eBay Search Ad	Zalando Search and Display Ad	Yahoo Search Ad		Dailymotion Video Ad

Note: The breakdown of the services provided by each firm and categorization into each of the CPS as suggested by the European Commission in the DMA was done to the best of our knowledge.
Source: Bruegel.

companies mostly because they provide only one CPS, but there is also a case (Vivendi) in which the reason for exclusion would be the high thresholds of criterion (a)[6].

Given the cumulative nature of the three quantitative criteria, from this baseline scenario, the number of firms actually falling under the gatekeeper designation could only decrease.

However, as technology companies develop and grow, more of them could be subject to the DMA obligations. Firms such as Airbnb, Zoom or Zalando could soon achieve the thresholds under the stricter IMCO position if the current trend continues.

The choice between one or two CPS as a requirement to identify a gatekeeper would make a big difference to the DMA scope. While the European Commission proposes that the number of business and end-users is calculated for a CPS of the provider, Schwab's proposal suggested that these figures should be calculated for each CPS of a provider that provides at least two of the services listed in the CPS definition.

This is a crucial difference that has the power to change significantly the number of entities considered as gatekeepers. This is because many companies that provide digital services – apart from the 'GAFAM' – do so for one type of service. This would be the case for SAP, Oracle, Airbnb and Salesforce, for example, as Table 4 shows. ■

Mario Mariniello is Senior Fellow and Catarina Martins a Research Assistant at Bruegel

Endnotes

1. Total revenues, Free cash flow, Cash and cash equivalents, Equity, Market Capitalization end of year, Net profits, Number of employees, Investment in Plant, Property and Equipment, R&D Investments, Aggregated number of acquisitions in the last five years, Aggregated number of patents in the last two years, Number of sectors where company is active, Revenue market share (of primary market), Search traffic, Daily page views per visitor, Alexa Rank 90 Day Trend, Global active users, Business area rank score

2. Alphabet, Apple, Facebook, Amazon, Microsoft, Yahoo (Verizon), Twitter, Zalando, eBay, Spotify, Netflix, SAP, Slack, Schibsted, Vivendi, Booking Holdings Inc, Otto Group, Expedia, Salesforce

3. The questions are the following: Does the platform have exclusive access to a large body of consumers?, Is it difficult for users to multi-home or switch platforms?, Are sellers substitutable?, Do users benefit from network effects requiring sellers to multi-home across platforms?, Platform has an established network, so that network effects and/or its ecosystem and related "stickiness" are an effective barrier to entry for alternative platforms.

4. The Council proposes that the EEA turnover above or equal to €6.5 billion should be verified in each of the last three financial years, and adds that the thresholds for the number of users, both end-users and business users, should be equal to or above – instead of just above – the respective thresholds included in the Commission proposal.

5. The outcome of our analysis is influenced by the COVID-19 pandemic crisis and its effect on the selected firms since we used the latest data available. This point is particularly relevant for the Council of the EU proposal because the threshold on turnover needs to be met for each of the last 3 financial years.

6. This analysis is subject to limitations, given that it is still challenging to isolate data for EEA turnover, but we believe that this does not influence the accuracy of the results. Naturally, other firms could be eligible as gatekeepers since the list of firms selected for this analysis is not fully encompassing. We included firms which have been considered in the European Commission's analysis, academic studies and mentioned in the media.

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The Global Gateway: a real step towards a stronger Europe in the world

Disappointment at the lack of fresh cash from EU global connectivity strategy is short-sighted. Simone Tagliapietra says Europe supports global development more than any other country in the world

On 1 December 2021, the European Union unveiled the Global Gateway, its plan to support infrastructure development around the world. This would mobilise €300 billion between 2021-2027 for connectivity projects, notably in the digital, climate and energy, transport, health, education and research sectors.

The rationale behind this initiative is clear: the world needs major infrastructure investments. The World Bank estimates that to achieve the goals of climate and environmental protection, universal access to energy, water and sanitation, greater mobility, and improved food security, the world must invest around €1.3 trillion per year in infrastructure.

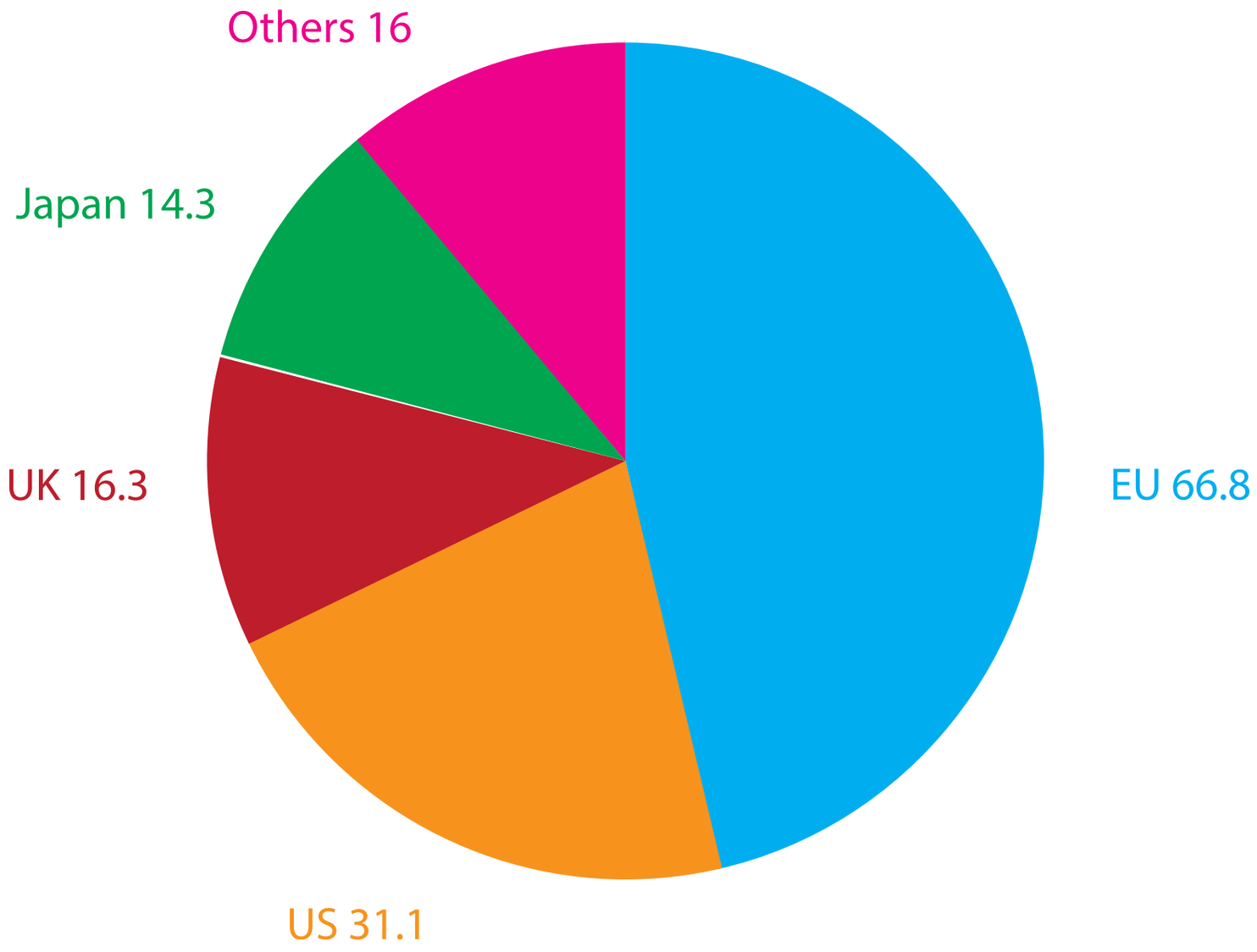
Alternatives to the Belt and Road Initiative

China understood the strategic importance of global infrastructure development when it launched the Belt and Road Initiative in 2013. To provide an alternative to the Chinese approach to global infrastructure development, some G7 leaders committed in June 2021 to *"a values-driven, high-standard, and transparent"* set of infrastructure partnerships: the US's Build Back Better World, the UK's Clean Green Initiative and the EU's Global Gateway.

The European Commission pitched the Global Gateway as *"a template for how Europe can build more resilient connections with the world"*, but critics quickly attacked the initiative, claiming it represents a repackaging of existing instruments rather than fresh EU cash.

However, this view misses the point. The EU and EU countries are already the world's leading providers of official development assistance (ODA). In grant equivalent (a methodology in which only the grant elements of loans are reported, instead of their full-face values), Europe disbursed €66.8 billion in 2020, 46% of world's total (Figure 1). What Europe really needs is not new resources, but to use existing ones more strategically.

Figure 1. Official Development Assistance (ODA) in grant equivalent in 2020 (in billions of euros)



Source: Bruegel from OECD.

To further put things into perspective, between 2014 and 2018 the EU and EU countries provided around €350 billion in ODA grant equivalent, while the Belt and Road Initiative (BRI) – against which the Global Gateway is being compared – provided around €200-€400 billion in loans, according to different estimates of the American Enterprise Institute and UNCTAD. Given that a grant represents a much bigger financial contribution than a loan, Europe's role as a donor is thus more significant than that of China or any other country.

In geopolitical terms, the Global Gateway can help the EU better position itself in the global infrastructure and connectivity race

Reducing fragmentation in EU global action

The problem is that EU action in the field is fragmented into countless initiatives, undertaken at both EU and national levels. As clearly outlined by the High-Level Group of Wise Persons on the European financial architecture for development, this has led to overlaps, gaps, inefficiencies and lack of geopolitical stance.

The EU has recently taken two steps to reduce this fragmentation and increase the coherence of its external action.

1. It has combined its funding for the neighbourhood and international development into a unique instrument, the Neighbourhood, Development and International Cooperation Instrument (NDICI), endowed with €79.5 billion for the period 2021-2027.

2. It has launched the 'Team Europe' package, which combines resources from the EU, EU countries, the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD), to provide around €40 billion to partner countries to deal with the health and socio-economic consequences of the pandemic.

The Global Gateway, which will also be delivered via Team Europe initiatives, represents another important step in this process of consolidation of Europe's development finance, and an important one because of its focus on the strategic issue of infrastructure development and connectivity.

The real question will be how well strategic coordination between EU countries and EU institutions and financial institutions will work. The attempt to improve that coordination is positive, but whether it will succeed remains to be seen.

On the grants-versus-loans discussion, it is also important to flag that the loans provided in the framework of the BRI have often contributed to economic instability in the initiative's partner countries. There is evidence that BRI lending practices have increased indebtedness to alarming levels in some partner countries.

Even before COVID-19, the World Bank estimated that nearly a third of the initiative's partner nations were at high risk of debt distress. BRI doubtless represents one of several factors behind this debt pressure, but there are clear examples of its megaprojects having significantly worsened the macroeconomic situation of several countries, including Djibouti, Kyrgyzstan, Laos, Maldives, Mongolia, Montenegro, Pakistan and Tajikistan.

A working paper analysing the financing of 100 Chinese projects overseas highlighted that *"cancellation, acceleration, and stabilization clauses in Chinese contracts potentially allow the lenders to influence debtors' domestic and foreign policies."*

The Global Gateway in numbers

€300 billion: this is the overall investment that the initiative seeks to mobilise between 2021 and 2027. Lack of fresh EU funds aside, there is scepticism about the ability of EU guarantees to really crowd-in private investment. This represents a classical criticism of EU guarantee schemes, where the leverage effect is generally between 10-15.

For instance, the Juncker Plan sought to leverage €315 billion of private investments on the basis of €21 billion of EU guarantees (a factor of 15), while the investment framework of the recently launched NDICI seeks to leverage €500 billion of private investments on the basis of €53 billion of EU guarantees (a factor of 10). In comparison to these crowding-in factors, the expected leverage factor of the Global Gateway is a lot smaller: the EU component is foreseen to mobilise €135 billion of private investment on the basis of €40 billion of EU guarantees (a factor of 3.4) (Box 1).

Box 1. The financial structure of Global Gateway

Global Gateway aims to mobilise infrastructure development investments of up to €300 billion in the period 2021-2027. This sum is composed of:

- €135 billion in investment foreseen under the European Fund for Sustainable Development plus (EFSD+), where the EU provides €40 billion in guarantee capacity – of which €26.7 billion via EIB and €13 billion via a EFSD+ new window dedicated to Global Gateway, targeting national financing and development finance institutions.
- €18 billion in grants under other EU external assistance programmes.
- €145 billion in planned investments by EU countries' financial and development finance institutions.

Existing programmes such as the Pre-Accession Assistance (IPA) III, Interreg, InvestEU and Horizon Europe will also be used to mobilise resources under Global Gateway.

To add to this financial tool kit, the EU is exploring the option of creating a European Export Credit Facility to complement existing credit arrangements by EU countries and increase its overall firepower in this area.

Source: Bruegel from the European Commission.

This looks reasonable, as what private investors want before they invest in developing countries is just political risk insurance. After all, the World Bank and other development banks have always made an extensive use of guarantees to mobilise private-sector resources for development projects.

In this respect, the Global Gateway, with its focus on limiting risks of debt distress in partner countries, seems to provide a more reliable alternative for global infrastructure development.

First, as already mentioned, the EU funding model is a mix of grants, soft loans and guarantees aimed at crowding-in private sector investments, while the BRI exclusively focuses on loans.

Second, the EU requires partner countries to adhere to the rule of law, upholding high standards of human, social and workers' rights, as well as a respect for international norms and standards of intellectual property. This contrasts with China's lending practices, where contracts often include stabilisation clauses challenging human rights and sustainable development policies.

Lending contracts of both the China Development Bank and the China Eximbank include stabilisation clauses that *"create carve-outs within the rule of law, limit the borrower's self-governance, and potentially block state-of-the-art environmental, public health, labor, and other potentially vital and popular regulations."* This might also help explain why the BRI is perceived negatively in certain countries.

Beyond money: focusing on expertise and technical support

It is also important to underline that the Global Gateway has a strong focus on expertise, alongside financial assistance. This is important, because creating an enabling environment to attract investment in partner countries with support for reform of regulatory frameworks, or technical support for the development of infrastructure

projects, is important to ensure the scale and long-term durability of development actions, beyond individual infrastructure projects.

Global and domestic benefits

Infrastructure investments are the material way of turning sustainable development goals into practice. Climate action requires renewable energy plants, power grids and electric vehicle charging infrastructure, in the same way that health requires hospitals, education requires schools or connectivity requires ports. By promoting Europe's values in the world, the Global Gateway can thus also become the export arm of a new EU industrial policy.

It can help meet the EU's international pledges, such as on climate finance, by supporting partner countries in the implementation of their sustainable development agendas. It can enable EU industry to enter new growing markets, a win for EU industrial policy. On top of this, it can help economic development in the EU's partner countries, providing an invaluable foreign policy dividend for the EU.

In geopolitical terms, the Global Gateway can help the EU better position itself in the global infrastructure and connectivity race. Rule-based cooperation focused on a clear set of priorities represents an attractive alternative to the BRI in several partner countries, starting in Africa.

By scaling up cooperation on economic and social infrastructure projects, the EU thus has an opportunity to promote its values and vision of sustainability in a way that is tangible and long-lasting. The main challenge will be to align all European players to cooperate and share these strategic goals. ■

Simone Tagliapietra is a Senior Fellow at Bruegel

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As European industrial policy evolves, state aid is acquiring a new role in the pursuit of the European Union's green and supply-chain sustainability goals. The Important Project of Common European Interest framework (IPCEI) – which supports major cross-border innovation and infrastructure projects – has emerged as the state aid tool of choice to support the European Commission's industrial goals, including on semiconductors and hydrogen.

However, the IPCEI governance structure is not up to the task of disciplining state aid. Uncoordinated national approaches facilitated by the framework create risks for fair competition in the EU.

Although present in European treaties since 1957, the IPCEI provision has been little used until now, but as it allows direct support to be given to companies seen as vital to European political and industrial objectives, IPCEIs are set to continue to increase in both number and size. Before 2017, only two infrastructure projects were approved as IPCEIs – the Øresund bridge between Denmark and Sweden and the Fehmarn Belt Fixed Link between Denmark and Germany.

Since then, three research, development and innovation (R&D&I) IPCEIs have been approved (one on microelectronics and two on batteries). The French presidency of the Council of the EU wants to advance four more in 2022. The existing microelectronics and batteries IPCEIs will be joined by large health, hydrogen, cloud computing and semiconductor IPCEIs.

In principle, the discretion to provide large amounts of state aid to industrial projects should be accompanied by strict governance and transparency to prevent graft and negative effects on the single market. Yet IPCEI severely lacks both and even provides incentives to EU countries to compete over industrial subsidies – exactly what state aid disciplines were introduced to avoid.

Deep reform is needed: as this tool becomes more used, the EU needs to impose stricter criteria to avoid damage to the single market. A minor revision in November 2021 failed to address any of the major flaws of IPCEI.

Important projects of common European interest

IPCEIs are meant to support projects that benefit the EU by making *"a very important contribution to sustainable economic growth, jobs, competitiveness and resilience for industry and the economy in the Union and [by] strengthen[ing] its open strategic autonomy"* (according to a 25 November 2021 European Commission press release).

IPCEIs are increasingly associated with highly visible political objectives which could put the Commission in a difficult position when deciding on the merit and applicability of individual projects, especially considering that the criteria are vague enough to elude any objective decision

Projects must *"overcome important market or systemic failures"* or *"societal challenges"* that prevent the project from being carried out *"in the absence of the aid."* IPCEI support is meant to bridge this funding gap for projects that the private sector alone cannot finance.

In practice, an IPCEI is a project, or several integrated projects, in infrastructure or R&D&I, carried out by the private sector and supported by at least four EU countries. R&D&I projects can be either research and development, or the first industrial deployment of technologies, products and processes.

The restriction to R&D&I and infrastructure is not derived directly from the European treaties, but a choice by the Commission to limit the scope and type of projects and reduce adverse effects. While IPCEIs can theoretically be EU funded, this has generally not been the case. IPCEIs are proposed, run and funded by the participating governments.

The European Commission has evaluated the framework and published an IPCEI update in November 2021. The main request of stakeholders – including firms and governments – was that participation in IPCEIs should be broadened, and more safeguards should be provided for public funds without distorting competition.

The IPCEI process needed to become more transparent and the Commission needed to provide a clearer and stricter definition of criteria. As we argue below, the revision has fallen short on addressing any of the major criticisms.

Lack of broad-based participation

A major flaw of IPCEIs so far has been the lack of broad-based participation of EU countries and small and medium enterprises (SMEs). There is no public record of the process through which IPCEIs are started. IPCEIs also tend to

favour bigger firms that are well connected to public authorities, and countries with more fiscal and administrative resources (as flagged by 11 EU countries in an April 2021 non-paper).

Fourteen EU countries have never taken part in an IPCEI and only four – Germany, France, Italy and Sweden – have taken part in more than two. The new rules double the minimum of countries participating to four and require that all EU countries be informed of the IPCEI and given a *"genuine opportunity"* to participate.

The 2021 IPCEI on batteries substantially raised the number of participating countries to 12. IPCEIs to be launched in 2022 have also attracted more countries. However, even if the number of participating countries increases, participation might remain unequal as big differences in amounts of aid could persist, provided depending on fiscal capacities of the countries.

Concerns remain over how able different countries are to support companies. In industries such as semiconductors and batteries, there are reasons to suspect that IPCEI subsidies are used to incentivise the establishment of factories in specific locations.

The German government offered Tesla a €1.1 billion subsidy in the IPCEI context for it to locate its European car and battery production in Germany, for example (Tesla subsequently withdrew its aid application after the German factory was built). These intra-EU subsidy races have serious corrosive potential for the single market.

Given that state aid to SMEs is less likely to distort competition, respondents to the IPCEI evaluation recommended the inclusion of smaller players. New provisions request that SMEs be given the opportunity to participate.

However, there are no minimum requirements for their participation. If SME participation is to increase, some active outreach may be required as smaller firms lack the resources to invest in public relations. At the very least, public tenders should become mandatory. Currently the Commission only states that a *"transparent and non-discriminatory procedure will be considered a positive indicator."*

In practice, it is mainly large firms that have benefitted from IPCEI. In the microelectronics IPCEI, between 35%-46% of the total budget will go to just one company (STMicroelectronics). Policy objectives such as increasing manufacturing capacity of high-end semiconductors require big investments in industrial champions. This points to the tensions that need to be addressed between European goals, national projects and bias in favour of big established industrial actors.

Lack of public spending transparency

Another major flaw of IPCEIs is the lack of transparency on the decision to invest public funds and on project governance. Through IPCEIs, much larger sums than for other state aid exemptions can be awarded. Some IPCEI recipients are reported to have been earmarked to receive in excess of €1 billion.

There are no absolute caps on the amounts nor on their proportion compared to the private share of investment. In theory, countries can finance projects fully. Not enough information on existing IPCEIs is currently available to enable monitoring of the efficient spending of public funds or the distortive effects on competition.

While the barriers to challenge state aid decisions are very high (complainants must prove that they are individually and directly concerned), Commission approval of an IPCEI does not disqualify it from competition lawsuits and audits by the European Court of Auditors.

The only restriction on the overall amount of state aid is that it covers the 'funding gap' and 'eligible costs' of a project. At the end of 2020, the Commission's publication of the results of an evaluation of existing state aid rules, which summarised comments from public and private stakeholders, flagged that *"the provisions on the calculation of the operating and capital cost funding gaps are too complex and not sufficiently clear."*

However, in its November 2021 revision of IPCEI, the Commission did not provide any additional details. Although it is the basis justifying state aid exemptions for IPCEIs, there is no clear definition of the calculation of the funding gap nor has it been published for existing IPCEIs.

Without this information it is impossible to verify how funding gaps are derived, but there are reasons to doubt that they are substantial for some of the world's most highly capitalised companies for the deployment of their core technologies, as in the case of the battery and proposed semiconductors IPCEIs.

The only binding transparency requirement for IPCEIs is the publication on a website of basic information on the aid provided (granting authority, beneficiary, amount) and of *"the full text of the individual granting decision and its implementing provision."*

However, of the three current R&D&I IPCEIs, only the decision on the 2017 Microelectronics IPCEI has been published by the Commission. The calculation of funding gaps is excluded from the public document. Overall, public information is scarce on how the money is spent, how the beneficiaries coordinate and on the general governance of such large long-term projects.

Looser environmental standards

IPCEIs were subject to environmental standards relating to the phasing out of environmentally harmful subsidies

and the taking into account of energy security and energy efficiency objectives, but in the 2021 update, the Commission replaced these with the sole provision that countries *"must provide evidence as to whether the project complies with the principle of 'do no significant harm'"* (DNSH).

However, the Commission does not commit to comply with the DNSH principle in its IPCEI decisions. Stakeholders fear this new provision risks adding administrative work to the application process – as was flagged when it was added to the Horizon Europe R&D application process.

In the end, the DNSH may evolve to become an extensive operational framework, but it is not yet the case and it will not provide guidance on environmental standards for the planned IPCEIs. IPCEIs are also not subject to impact assessments.

Fundamental governance flaws necessitate a fundamental reform

Climate policy goals and strategic autonomy may justify a discretionary state aid tool like IPCEI. But it needs to be accompanied by strong safeguards. Otherwise, it runs the risks of harming the single market through weakened competition and of creating a political economy susceptible to graft by large firms in subsidy races.

The IPCEI lacks constraints and is only limited by the Commission's own assessment of what it considers a 'market failure' and 'innovation'. The lack of public information and its delayed publication mean that there is little scope for the public and competitors to scrutinise projects. With large subsidies at stake, this is troubling.

IPCEIs are increasingly associated with highly visible political objectives which could put the Commission in a difficult position when deciding on the merit and applicability of individual projects, especially considering that the criteria are vague enough to elude any objective decision.

While the lack of public information precludes a detailed analysis, anecdotal evidence suggests that in sectors like batteries, national governments might already face an intra-EU subsidy race.

This creates serious risk that fair competition within the single market will be undermined. A fundamental overhaul of the framework is therefore needed. Three changes are crucial.

First, if governments provide substantial public funds to a private company, extraordinary transparency is warranted. While the interest of private companies in not disclosing information is understandable, it needs to be weighed against the public interest in avoiding graft and ensuring efficient use of public funds.

The current IPCEI framework is clearly unbalanced in this regard. Information on projects and decisions should be published in an accessible and timely manner.

Second, stronger EU governance is needed to avoid negative effects on the single market from large countries funding their own companies and incentivising large firms to locate production on their territory.

Decisions on IPCEI financing should include some involvement of third parties in the decision making – the European Parliament, public debates and stakeholder consultations. IPCEIs need to become real 'Common European Projects'.

Third, strict definitions of the criteria for granting state aid under IPCEI are necessary. The loose definitions that can be redefined by the European Commission could lead to a further watering down of state-aid disciplines in the name of strategic autonomy.

This may have already started. In the context of the European Chips Act, Commissioner Vestager already proposed providing support to 'European first-of-a-kind' projects, meaning projects that are not innovative themselves but haven't been applied in the EU yet. ■

Niclas Poitiers is a Research Fellow, and Pauline Weil a Research Assistant, at Bruegel

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Is the post-war trading system ending?

Global trade faces many challenges. Uri Dadush argues the post-war system is being transformed into a more complex, politicised and contentious set of trade relationships

Summary

The world trading system is reeling from the trade war between China and the United States, the disabling of the World Trade Organization Dispute Settlement Understanding and repeated rule-breaking by WTO members. This does not mean the end of the post-war system, but it is being transformed into a more complex, politicised and contentious set of trade relationships.

The new framework is likely to evolve around a WTO in maintenance mode with weak and largely unenforceable rules, and three blocs built by regional hegemons. Trade within the blocs will be relatively free and predictable, but the blocs are far from cohesive, contributing to the politicisation of the system. Trade relations between the blocs, especially among the regional hegemons, will be tense and potentially unstable.

Countries across the world need to rethink their trade and foreign policies to reflect the new reality. They need to continue to lend support to the WTO but also to accelerate work on regional and bilateral deals, while entering plurilateral agreements on specific issues – within the WTO if possible, or outside it if not.

Beyond these general prescriptions, the priorities of different economies vary greatly. The trade hegemons of China, the European Union and the US face vastly different challenges.

Middle powers on the periphery of the regional blocs, or outside them, such as Brazil, India and the United Kingdom, face an especially arduous struggle to adjust to a less predictable system. Small nations will be forced into asymmetrical deals with the hegemons or will play them off against each other, adding to the politicisation of trade relations.

The continued dysfunction of the World Trade Organization (WTO) as a negotiating forum, the disabling of its dispute settlement mechanism, the trade war between China and the United States, and a proliferation of protectionist measures (Global Trade Alert, 2021) raise big questions: is the post-war multilateral world trading system, which enabled open and predictable trade, and which coincided with unprecedented economic progress, coming to an end?

If so, what will take its place? These questions are especially critical for the European Union, whose members are among the countries most dependent on trade, and which is multilateralist by virtue of its construction.

The future is unknown, but bad and good scenarios can be sketched out and their consequences examined. Bad scenarios require preparation and mitigation; good scenarios may present opportunities to be seized early on.

This Policy Contribution assesses how the trading system has changed over the last five years – roughly coinciding with the start of the Trump administration and one year of President Biden – and sets out scenarios for how the situation might evolve. Where possible, it derives some policy implications.

1 What constitutes the world trading system?

Much of the discussion of the trading system is cast in legal terms. Though essential, the legal perspective offers only limited insight into the economic effect of trade measures. Even the most egregious violation of WTO rules can have minuscule economic and systemic effects, while interventions that can be plausibly defended as legal can have far-reaching adverse consequences.

The enforcement of international law depends on the willingness of the most powerful sovereign nations to submit to it. So, it makes a big difference, for example, whether the rule-breaker is, say, Tunisia, or the United States – the principal architect of the post-war trading system.

Our interest here is not the number of violations of the rules, but their cumulative economic effect and what they imply for the sustainability of trade flows.

In that spirit, I depart from standard approaches in two ways. First, I define the world trading system as all rules and regulations governing world trade, including the WTO but also rules established under regional trade agreements and national law.

The WTO plays a central role in the world trading system because it is a near-universal treaty and it aims to govern the framework at all three levels, so members are obliged to fashion regional agreements and many domestic laws in a way that is WTO-compliant.

Though each regional trade agreement (RTA) comprises only two or a small group of partners, all RTAs together now cover most of world trade and often go much further than WTO disciplines. For example, while WTO agreements commit only to an upper bound for tariffs on most sectors, RTAs typically commit to zero applied tariffs

on over 90 percent of trade. In 2020, nearly all EU members sent more than half of their goods exports to other EU members free of tariffs.

Domestic rules and regulations apply only in a single territory and are not enshrined in international treaties unless agreed explicitly. However, their coverage of commerce is comprehensive and detailed and can either promote or impede international trade in many ways.

Most disputes involving international companies are adjudicated in national courts, and rules and regulations governing trade in services, e-commerce and government procurement are still predominantly national or local. Thus, all three levels of law – global, regional, national – are crucial in determining the state of the world trading system.

There has been a major acceleration in bilateral and regional deals, and an improvement in their coverage and depth

Second, I depart from standard approaches by referring to 'world trade' or 'international trade' to include not only trade in goods and services but also foreign direct investment. The system of laws governing foreign direct investment is quite separate from that of trade in goods and services.

Investment protection is provided by bilateral investment treaties (BITs), while investment market access is governed by national laws and in some instances under regional trade agreements. The WTO's coverage of foreign direct investment in goods remains minimal.

However, regardless of their legal separation, trade in goods and services and foreign direct investment have become inextricably connected through the globalisation of production, or global value chains. The locally procured sales of foreign subsidiaries are often larger than exports from a home base, and the lion's share of services trade occurs under Mode 3 (foreign establishment/commercial presence). Therefore, any realistic assessment of the state of the world trading system must include restrictions on investment.

2 The system post-Trump

President Trump was elected on a nationalist and protectionist platform. On his third day in office, 23 January 2016, he abandoned the Trans-Pacific Partnership, a trade agreement that 12 nations, with the US leading, had negotiated over 10 years, but which had not been submitted for ratification by the US Congress.

Trump made numerous anti-trade and anti-WTO interventions subsequently, including tariffs on aluminium and steel on national security grounds applied to allies Canada, Japan and the EU, and, most notably, Section 301 punitive tariffs against China, starting in July 2018.

Trump also refused to renew the appointment of WTO Appellate Body judges, disabling it at the end of 2019. Though Joe Biden ran successfully against Trump on a platform highly critical of his trade policies, and has mended fences with the EU, he has shown little inclination to date to take a substantially different tack from Trump on China or on WTO dispute settlement.

As anticipated during his election campaign, Biden has declined even to consider new free trade agreements as he focuses on the pandemic and economic recovery.

The World Trade Organization

US dissatisfaction with the WTO long preceded Trump's arrival. The failure of the Doha Agenda – initiated in 2001 – and the failure even to agree that it has died, means the WTO has not been able to move forward on a multilateral deal entailing major trade liberalisation.

The Trade Facilitation Agreement of 2013, which marked progress in establishing rules for custom procedures, is the only major achievement since the WTO was established in 1995. The last ministerial conference, held in Buenos Aires in 2017, ended without agreement.

COVID-19 has repeatedly forced indefinite postponement of the 2019 conference. During Trump's tenure, the WTO was fundamentally damaged in two ways: the Dispute Settlement Understanding, considered the institution's crowning achievement, has been disabled, meaning that rules are in practice no longer enforceable; and the outbreak of a trade war between the largest trading nations, China and the US, and the associated rule breaking, has undermined the WTO's legitimacy and its prospects for reform.

The WTO contends with divisions among its members on crucial issues beyond China-US trade relations. These include a refusal of members such as India and South Africa to consider plurilateral deals as an alternative to the inoperable single undertaking/consensus procedure; opposition of China and India to the doing away of special and differential treatment for the best-performing developing economies; and the US refusal even to propose reforms of the Appellate Body that would assuage its concerns.

Despite the WTO's dysfunction and the deep divisions over how to reform it, none of its members appear ready to leave or dismantle it. The EU remains strongly committed to multilateral negotiations and has been part of an effort, with China and about 40 other members, to establish an interim arrangement to settle disputes, using arbitration under Article 25 of the General Agreement on Tariffs and Trade (GATT) while the WTO Appellate Body remains inoperable.

The Biden administration has departed from Trump by voicing support for the WTO. China has signalled in different forums that it will entertain structural reforms designed to allay concerns about its subsidies and other distortive measures (Dadush and Sapir, 2021).

China has joined negotiations on various 'open' plurilateral deals[1], and has helped bring one – on domestic services regulation – to a successful conclusion. The WTO's rule book, its acquis, continues to be valued by its members, giving it life despite the shortcomings.

Regional trade agreements

Since 2017, there has been a major acceleration in bilateral and regional deals, and, more importantly, an improvement in their coverage and depth.

RTAs notified at the WTO since 2017, or on which negotiations have concluded and are in the process of being ratified, include the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), accounting for over 13 percent of world GDP, and the Regional Comprehensive Economic Partnership Agreement (RCEP), which includes China and several Asian economies that are also part of CPTPP, and which accounts for 30 percent of world GDP.

Other notable deals include the United States, Mexico and Canada agreement (USMCA) which revises and extends the previous arrangement, and which also accounts for about 30 percent of world GDP, and the African Continental Free Trade Area (AfCFTA), which accounts for about 3 percent of world GDP.

At least two important bilateral deals have come into force: EU-Canada and EU-Japan. Negotiations between the EU and Mercosur have been concluded but the deal faces major ratification obstacles, as does the innovative Comprehensive Agreement on Investment between the EU and China.

The number of RTAs in force notified at the WTO increased by a similar amount in the last five years as it did from 2011 to 2016: 68 in the latter period, compared to 61 in the previous one. Recently, several new agreements arose from Brexit and the subsequent rearrangement of the United Kingdom's trade relations with third parties.

More important than the raw numbers, however, are the type and size of agreements that have been reached. After a fallow period from 2009-2010 in the wake of the global financial crisis (GFC), deals notified from 2011 to 2016 included no mega-regional agreements and consisted of relatively small bilateral deals. Australia-Japan and China-Korea were among the largest.

In contrast, recent deals including CPTPP and USMCA are 'deep' agreements encompassing large parts of world trade and containing important new WTO+ provisions on ecommerce, state-owned enterprises, subsidies, and labour and environmental standards.

The RCEP is a less deep agreement but includes harmonised rules of origin, which will significantly facilitate the operation of value chains across Asia.

AfCFTA should also be seen as a landmark agreement because it aims to integrate the market of Africa, the world's poorest continent, home to many countries which took a sceptical view of the benefits of free trade after their colonisation by European powers ended some six decades ago.

Economists sometimes underestimate the importance of regional agreements, viewing them correctly as second-best to multilateral deals. Studies of regional trade agreements based on static simulation models typically identify only small net welfare gains accruing to the parties, even when agreements are large and comprehensive – less than 1 percent of GDP once and forever. They also indicate welfare losses in third parties as trade is diverted from them.

However, while these calculations are useful in many contexts, they fail to account for long-term dynamic gains from trade, such as those arising from competition and learning from the frontier. Most importantly, they use the status quo – ie. relatively free trade under WTO rules – as the counterfactual, which is precisely the assumption that ought to be questioned in the present circumstances.

For the United States, prior to USMCA, the last notified agreements were small and date back to 2012, when those with Panama, Colombia and Korea came into force. India has also stood back from major deals, dropping out of RCEP at the last moment, even as it resists all initiatives for WTO reform.

It is difficult to escape the conclusion that, faced with WTO negotiating dysfunction, India's obstructionism and US opposition to the point of withdrawal from its adjudication function, nations worldwide have sought predictability in their trade relations elsewhere.

They are doing so by striking deals with their most important trading partners, even the most distant. If anything, this trend appears to have been reinforced recently, as shown, for example, by China's and the United Kingdom's applications to join the CPTPP[2].

Domestic laws and regulations

The only source of regularly updated information on trade interventions that claims to cover domestic laws and regulations – as well as changes in tariffs – is Global Trade Alert (GTA)[3] (Evenett and Fritz, 2021).

Drawing on various national sources, GTA reports 33,000 harmful rules ('harmful interventions') and 7,100 'liberalising interventions' in the last five years, compared to 18,400 harmful interventions and 4,300 liberalising measures from 2011 to 2016.

Thus, harmful interventions have been four to five times more frequent than liberalising interventions, and the number of harmful interventions increased by 80 percent in the last five years compared to the previous five.

Only 7 percent of harmful interventions are tariff measures. Even before the pandemic, subsidies of various kinds that placed foreign producers at a disadvantage – whether at home or abroad – accounted for the vast majority of these measures. The remaining measures consist mainly of contingent protection and foreign-investment restrictions.

Contrary to the popular view, trade-distorting subsidies are frequent in manufacturing, and not just in agriculture, in violation of WTO rules. Moreover, though China is a major offender, so are the European Union and the United States.

It is difficult to characterise such a vast mass of interventions, but one can point to some important developments in the largest traders. For example, the US and the EU have adopted more stringent foreign-investment screening measures, especially those designed to guard against security risks and subsidised competition from China.

Under its Buy American Act, the United States has further restricted foreign access to its public procurement. China has stepped up various forms of control over foreign-invested companies, including in the political sphere – for example, by penalising firms that refuse to buy or produce in Xinyang[4]. However, its 2020 Foreign Investment Law introduced many important liberalisation measures.

3 Quantification

The previous discussion shows that large parts of world trade have become less open, most notably between China and the United States, the world's largest economies. But it is also evident that other parts of world trade have become more open as huge regional deals have been struck.

At the same time, since WTO rules are no longer enforceable under the Dispute Settlement Understanding, all trade that is not covered by trade agreements has become less secure and predictable. While trade within the European Union, and that within USMCA, CPTPP and RCEP, to take four major examples, can rely on agreed enforcement mechanisms, trade that is covered only by the WTO cannot.

This is an especially ominous development because the world's largest trading nations are by far the most reliant on WTO dispute settlement. No bilateral agreements exist between China, the EU, the US and India, for example. The smallest and poorest nations, in contrast, only rarely resort to the WTO to settle disputes[5], though even the possibility that they can do so is a check on all members.

What is the net effect on trade flows of the restrictive and liberalising interventions that have been put in place over the last five years? This question could in theory be addressed in two ways: by estimating the tariff-equivalent effect of thousands of specific measures, or by examining the recent evolution of world trade against a counterfactual.

Unfortunately, without a major modelling exercise (and possibly not even then), neither approach can provide an unequivocal answer, based on the information and modelling techniques presently available.

Analyses of major interventions can shed some light, however (Box 1). The single most important restrictive event is the China-US trade war, which has resulted in additional tariffs of 20 percent on about $500 billion in bilateral trade.

Yet, China-US trade in goods accounts for less than 3 percent of total world trade in goods, and, according to Petri and Plummer (2020), the combined effect on global welfare of CPTPP and RCEP more than fully offsets the impact of the China-US trade war, though not for China and the US, which are net losers from the increased tariffs.

Estimates of US welfare losses from the trade war place them at around $50 billion, equal to just 0.04 percent of US GDP (Fajgelbaum and Khandelwal, 2021). And these losses are unlikely to have been offset by USMCA, which – though it contains innovative features – was essentially a revision of an existing agreement. As concerns openness to trade, the US is almost certainly in a worse place than it was five years ago.

Box 1. Chronology of trade events

Restrictive events are shown in red, liberalising events in green, neutral in black. Major events are underlined and dated.

Jan 2017 — **Trump in office, exits TPP**

Buy America provisions
Buenos Aires ministerial ends without agreement, initiates Joint Statement Initiatives
US tariffs on washing machines and solar panels
US tarriffs on aluminium and steel

Jul 2018 — **Tariffs on China; China retaliates (20% average by Jan 2020)**

USMCA talks conclude
CPTPP talks conclude

Dec 2019 — **WTO Appellate Body disabled**

Feb 2020 — **UK exits EU (negotiates dozens of partial trade deals)**

Phase 1 China-US deal concluded, includes forced purchases

Dec 2020 — **RCEP talks conclude**

China-EU CAI talks conclude
Buy America Act signed by Biden

Oct 2021 — **US retains tariffs on China**

Biden administration expresses strong support for the WTO
China applies to join CPTPP

Note: From 2017 to 2020 the EU concluded FTAs with Canada, Japan and Vietnam, and concluded negotiations with Mercosur.

In contrast, trade conducted by the EU is almost certainly somewhat freer than five years ago on account of its recent trade agreements. Brexit was a setback, but trade between the EU and the UK remains largely free under a revised framework.

Tariffs on EU exports of aluminium and steel to the US are now effectively lifted and replaced by a presently non-binding tariff rate quota arrangement (Dadush, 2021), and an agreement was struck in the long-standing Airbus-Boeing dispute[6].

The tens of thousands of restrictive domestic measures listed by Global Trade Alert are certainly alarming. However, their quantitative impact is unclear. For example, GTA identifies thousands of subsidy interventions by the United States, most of them in manufacturing, identifying their source but not their size.

In fact, the two main sources of non-agricultural subsidies are the US Small Business Administration and the Export-Import Bank (Evenett and Fritz, 2021, pp 53-60). These organisations mainly dispense loans at preferential interest rates and their overall portfolios and budgets grew only modestly in the years preceding the pandemic. Accordingly, the grant element of net new loans and transfers dispensed by them is unlikely to be much above several billion dollars a year.

There is little doubt that these interventions break WTO rules (or at least depart from the spirit of non-discrimination) and their trade-distorting effect is significant for some firms in some sectors, but their quantitative impact on trade appears limited.

These partial analyses suggest that – except in the case of the United States and, possibly, China – trade for many nations, especially those in the Pacific rim, the EU and Africa, may be freer today than five years ago.

However, it is not possible to draw firm conclusions. What is the trade and investment deterrent effect, for example, of the uncertainties generated by the disabling of the WTO Appellate Body? And will this deterrent effect become magnified over time as trade disputes fester? These important research questions remain open.

If the cumulative effect of the restrictions applied over the last five years was large, it should be visible in the evolution of trade flows, in the form of a sharp reduction in the growth of world trade.

At this stage, it is not possible to say with any confidence whether or not this has occurred. World trade slowed sharply in the wake of the global financial crisis, well before Trump's arrival. According to the International Monetary Fund World Economic Outlook (October 2021; Figure 1), over the last five years the volume of trade in goods grew at the average annual rate of about 2.8 percent, the same rate as the previous five years.

China-US trade, where one would be most likely to see the effect of protection, grew rapidly in 2021 from the pandemic-stricken levels in 2020. Although China-US trade is down from its peak in 2018, it is a little larger than in 2016.

Of course, there are significant confounding influences that prevent identification of the effect of protectionism on trade. In 2019, world trade stagnated reflecting a large slowdown in global economic activity arising from many factors unrelated to trade policy. The pandemic, which hit in early 2020, caused the biggest decline in world trade since the Great Depression, followed by a very sharp recovery.

In any event, it is early days to gauge the effects of protectionist measures on global trade flows. Though the atmospherics of trade had deteriorated already in the run-up to Trump's election, and markedly on the US

Figure 1. Annual growth of world GDP and trade volume of goods and services, % change

Source: Bruegel based on IMF World Economic Outlook Database, October 2021.

withdrawal from TPP and with the levying of tariffs on aluminium and steel, major restrictive measures took effect only in 2018 with the Section 301 actions against China.

The WTO dispute settlement mechanism was known to be under threat even before Trump's election, but it was disabled only at the end of 2019. Growth of trade in 2021 is still only an early estimate.

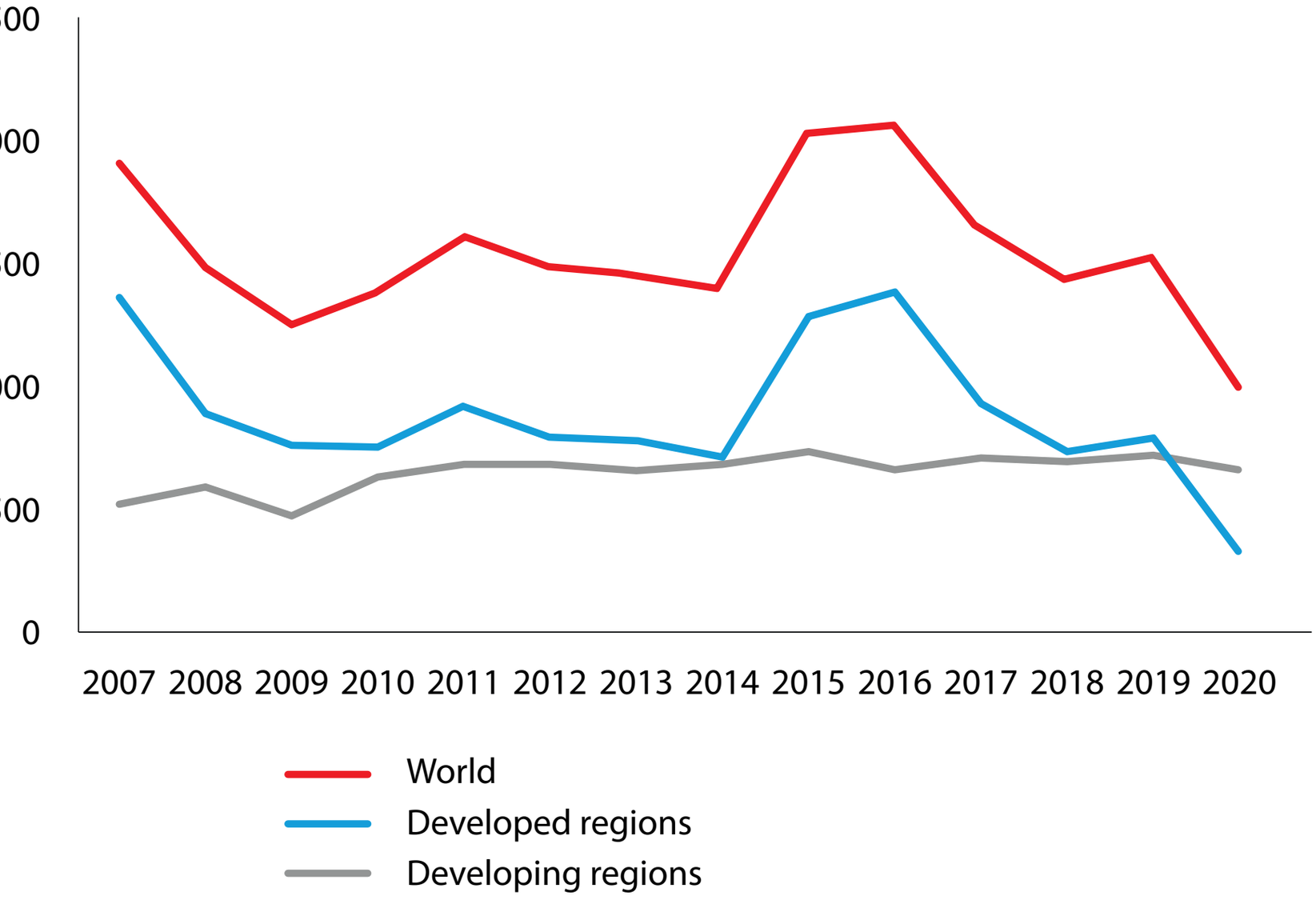
In 2021, world FDI had recovered from very low levels during the pandemic[7]. However, it remains about 20 percent below the level reached in 2016, on account of a decline in both inward and outward FDI in Europe and the United States, while flows of developing countries, including inward flows to China, have remained at similar levels as five years earlier. Despite the trade war, the US and China retain their ranks as the premier FDI destinations.

In summary, some of the institutional underpinnings of world trade have been damaged, while others – mainly due to RTAs – have been strengthened in the last five years. Because of RTAs, the trade of the EU and Japan is probably freer.

US trade is almost certainly less free and trade among the largest economies has become less predictable as the crisis in the WTO has deepened. However, it is not possible to say with certainty whether the net effect of these big changes is to make trade across the world less or more restricted.

Though the headline average growth rate of world trade has not changed, it is also not possible to say whether, because of institutional changes, trade flows have slowed or accelerated relative to a counterfactual where institutional arrangements did not change. If anything, the evidence underscores the resilience of trade and foreign investment, even in very difficult circumstances.

Figure 2. FDI inward flows for the world, developed and developing countries, $ billions



Source: Bruegel based on UNCTAD World Investment Report 2021.

4 Scenarios

Very bad and very good scenarios for world trade are both possible. However, the worst and best outcomes are equally unlikely. A more likely scenario lies in between (Figure 3).

A worst-case scenario is conceivable, in which China and the US decouple, the WTO unravels, and the world descends into a dark age of protectionism, with declining world trade. There are two reasons to think it will not materialise: globalisation is not stopping, and countries are increasingly compelled to cooperate.

Countries that stand back from globalisation pay a heavy price in terms of foregone welfare and, ultimately, history shows, loss of international competitiveness and political legitimacy at home. Globalisation persists because vast arbitrage opportunities remain in the markets for goods, services and capital, and these opportunities are difficult to resist.

Figure 3. Worst, medium and best-case scenarios for global trade relations

Best case	Medium-case prediction	Worst case
China-US punitive tariffs removed. Limited multilateral deals reached. WTO adopts 'closed' plurilateral approach. DSU revived. MFN tariffs slowly decline. World trade grows at a rate above world GDP.	China-US hostility persists but trade remains. WTO in maintenance mode. MFN average tariffs rise a bit. Three regional blocs, not cohesive. Tense relations among blocs; ad hoc dispute.	China and US decouple. WTO collapses and average tariff levels soar. Hostility between trading blocs. World trade declines.

Source: Bruegel. Note: DSU = Dispute Settlement Understanding.

Arbitrage opportunities remain despite the global market integration of past decades because many developing countries, home to most of the world population, are growing rapidly and because product and process innovations continue.

Severe restrictions on migration (that do persist because they are supported domestically) imply that very large wage and price differences will remain. These can only be narrowed through trade and investment over a long time.

Meanwhile, ICT-based innovations, including remote work, e-commerce, artificial intelligence, blockchain and cryptocurrencies, are reducing trade costs, sometimes dramatically, by improving the ability to coordinate and exchange.

Meanwhile, globalisation itself and other factors that are largely extraneous to economic forces are greatly raising the stakes for international cooperation, of which trade is an essential part. Without trade in vaccines and personal protection equipment, there would have been many more COVID-19 victims, and economies would have struggled even more than they did to compensate for domestic supply disruptions. Mitigation of climate change and adaptation to it will be much more costly without open and predictable trade.

A best-case scenario, in which China and the US resolve their differences, WTO dispute settlement is reanimated, the WTO recovers its capacity to strike major deals, and MFN tariffs decline, is not impossible, but is also unlikely.

There is little reason to believe that the impasse on the big dividing issues at the WTO can be overcome, given the increased complexity of the issues confronting it, the diversity of its membership and the limitations imposed by its consensus rule.

The deepening geopolitical and security divide between China and the US adds greatly to the complexity (Dadush, 2022). Trade relations between the two giants are now less dependent on the technicalities of trade distortions than on geopolitics, and the prospects there are not good. Against that background and given its sharp political divisions on trade, the US does not appear likely to submit itself once again to binding adjudication in the WTO.

5 Prediction

The most likely scenario is a trading system based on trade blocs built around China in Asia, Germany/France in Europe, and the US in the Americas. Within the blocs, trade will be largely open and predictable - as presently seen within the EU and USMCA, for example - but none of the blocs are cohesive. Within each bloc, individual members – including the largest – will be attracted by the gravitational pull of large members outside the bloc.

Trade for many nations, especially those in the Pacific rim, the EU and Africa, may be freer today than five years ago

The Asian bloc (built mainly around RCEP and CPTPP) is likely to remain the least cohesive, reflecting its many territorial disputes. Large Asian nations such as Japan must trade with China but also fear it, and are reliant on the US security umbrella.

India, protectionist and a rival to China, remains outside any of the blocs. The EU, a customs union and a single market in many respects, is the most cohesive trade bloc but because of divergent trade interests, internal divisions, and its reliance on the US security umbrella to contain Russia, it will struggle to define a trade strategy that accommodates both China and the United States.

The United States dominates in North America, but further south, Brazil and other nations, for which China and the EU represent very large export markets, are likely to chart a more independent course.

The WTO will languish in a kind of maintenance mode, as at present, but will not collapse. It will remain a reference framework, a forum for discussion and a purveyor of limited disciplines on international trade. Its weak and unenforceable rules mean that relations between the blocs will be tense, uncertain and potentially unstable, especially among the three regional hegemons.

Inter-regional disputes, such as those on aluminium and steel between the EU and the US, will proliferate and will be resolved in ad-hoc bilateral negotiations, or will simply fester when those fail. Outside the blocs, the absence of a binding adjudication process will lead to the politicisation of issues in many instances.

Many small and middle powers – ranging from the likes of Morocco to Brazil, India and the United Kingdom – will operate on the periphery of the blocs. In the event of trade disputes, they will be left with few defences.

These nations will be either forced into asymmetric deals with regional hegemons or will try to play the hegemons off against each other, adding to the politicisation of the trading system.

6 Policy

To deal with a world trading system based on regional blocs, and to guard against worst-case scenarios, countries should initiate or consolidate bilateral and regional deals with their main trading partners, including those outside their geographic regions. Where bilateral deals are not possible, countries should at least seek to establish regular consultation mechanisms.

These could prove useful not only to forge deals when the time is right, but also to avert disputes and, when a dispute occurs, to set up ad-hoc resolution procedures, such as arbitration.

Countries should continue to support multilateral and plurilateral initiatives in the WTO and should aim to re-establish the dispute settlement system in some form (eg. arbitration under GATT Article 25 as per the interim arrangement of which the EU is part).

However, they should also recognise the limitations of what can be achieved in that forum. Where progress stalls, countries should consider pursuing 'closed' or 'open' plurilateral deals outside the WTO.

Within this broad framework, policy priorities will vary depending on each country's situation: a fertile area for further research.

EU members are already well positioned, since a large share of their trade occurs within the bloc and, as members of a customs union, they can rely on a vast network of agreements with third parties.

Some of these are high quality, deep agreements that go beyond trade in goods to cover services and investment. The EU's main challenge is to develop a coherent trade strategy that captures opportunities in China while retaining strong links with the US.

The EU's trade policy – like that of China and the US – will be heavily conditioned by geopolitics, so the deftness of the EU's diplomacy will matter greatly in determining trade outcomes. The EU should revive the idea of a trade agreement with the US, perhaps a less ambitious deal than the ill-fated Transatlantic Trade and Investment Partnership.

The EU could also consider applying to CPTPP, as China and the UK have done, mainly in a quest to cement its links with all of East Asia, the world's largest and fastest growing economy. The EU and China should seek a political compromise that enables ratification of the CAI.

China has continued to support the WTO and has complied with its rulings when found at fault. In recent years, China has also sought to negotiate numerous bilateral and regional deals, with considerable success. The size of China's market and its dynamism provides it with a big advantage in trade negotiations, whether they are aimed at reciprocal opening or to avert and deal with disputes.

China's ideal may be to build a free trade area covering Asia or even across the Pacific. But to do so, it will either risk suffering great losses in its most important export market, the US, or it will have to find a modus vivendi with its rival. Achieving that goal will require geopolitical and security compromises that go beyond the scope of this Policy Contribution.

In the narrow economic sphere, to reach a measure of agreement with the US, China will have to pursue structural reforms that limit the trade-distorting effects of its mixed economy. China will also have to recognise that, though it is a self-declared developing country, it bears major systemic responsibilities given its weight in world markets. China's application to CPTPP is a step in the right direction.

The US is a special case because more than any other country it can – despite its diminishing sole superpower status – shape the world trading system as much as it must adjust to it.

A huge and diverse economy rich in human capital and natural resources, the US is the nation least forced to depend on international trade, but – because of its technological lead and the primacy of many of its firms in the fastest growing sectors – it is also that most likely to derive benefits from exporting and investing across the world.

More than at any time since the Cold War, its national security and the preservation of its alliances demand that it remains engaged in world trade.

The US faces a major choice: whether, as a nation of laws, it wants a world trading system based on rules, or one that is based on power. If it opts for the former, it will have to sacrifice some autonomy, but it is possible that some aspects of the good scenario described above will materialise. The resuscitation of WTO dispute settlement is largely in the hands of the US, for example.

If – as appears more likely – the US opts for a power-based world trading system, it will retain more freedom of manoeuvre and will derive some advantages in the short-term, but it will also generate great uncertainty for its firms, antagonise its allies and may not retain its dominance for long as China rises.

Whichever path it chooses, the US must both expand its network of regional and bilateral trade agreements and seek a basis of understanding with China. Its current stance, which is to impede the WTO dispute settlement mechanism, cast China as the arch-rival and eschew all new trade agreements, is the worst of all possible courses. ■

Uri Dadush is a Non-Resident Fellow at Bruegel

Endnotes

1. 'Open' plurilaterals, such as the Information Technology Agreement, convey the benefits of the deal to all WTO members, whether they are participants or not, and do not require a waiver from the whole membership. They are possible when a critical mass of countries commits (ie. there are few significant free riders) and when the reforms they commit to are seen as promoting their own competitiveness. 'Closed' plurilateral deals, such as the Government Procurement Agreement, do not convey benefits to non-participants and typically do not include a critical mass of countries. However, under current WTO rules, closed plurilaterals require a waiver from the whole membership. No closed plurilateral deal waiver has been granted since the Uruguay Round.

2. See https://www.gov.uk/government/collections/uk-position-on-joining-the-cptpp-trade-agreement

3. See https://www.globaltradealert.org/

4. See Reuters, 'China warns Walmart and Sam's Club over Xinjiang products', 31 December 2021.

5. Settling disputes at the WTO relies on the ability of the plaintiff to apply retaliation, which small and poor members tend to find ineffectual in a small market, or even impossible for the lack of alternative domestic suppliers. Moreover, the process is lengthy, expensive and requires legal capacity that may be lacking.

6. See for example France24, 'US and EU reach deal to end 17-year Airbus-Boeing trade dispute', 15 June 2021.

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The climate transition and its social dimension

Mehtap Akgüç, Kalina Arabadjieva and Béla Galgóczi discuss the employment and distributional aspects of climate change mitigation in the European Union

The proposal by the European Commission for a Council Recommendation on the social and labour aspects of the climate transition, presented last December, is another welcome sign that employment and distributional aspects of climate change mitigation have been recognized at the highest policy level.

As well as the inclusion of the notion of just transition into the preamble of the 2015 Paris Agreement, and then in the Glasgow Climate Pact, this can be seen as a modest but important achievement of a several decades-long campaign for a just transition by the labour movement.

The announcement of the European Green Deal (EGD)[1] in 2019 had already included pledges to 'leave no-one behind.' The Just Transition Mechanism[2] and the proposed Social Climate Fund[3] are some of the main EU measures announced to date intended to mitigate the impact of the transition on the most affected regions, vulnerable individuals and businesses.

The expected Council recommendation, which is not legally binding, would provide guidance to member states on how to ensure that the green transition takes place in a just and fair way. This is a huge challenge that spans across many questions, such as the distributional effects of decarbonization policies, jobs losses and employment transitions, the protection of basic social rights and inclusion of citizens in decision-making, to name but a few.

By no means should this instrument be seen as a substitute for strengthening the social dimension of EU legislative and policy measures on climate change. Nor should it give reason to lower climate ambitions – a 'just transition' does not mean 'slow transition.'

A just transition for the EU can only be 'just' in a true sense if it goes with maximum climate ambition, particularly given Europe's historical debt to low carbon footprint developing countries. With this in mind, we outline some

of the key labour and social effects of the EU's Fit for 55 climate package[4] on the EU population and potential responses that the recommendation should consider.

Employment effects

Climate policies are having and will continue to have a major effect on the world of work. Millions of new jobs are being created in the transition to a net zero carbon economy, but a large number of jobs will also disappear. The majority of jobs will go through a fundamental transformation.

A just transition means that addressing both the employment and distributional effects of a transition to net zero should be an integral part of the package and not supplementary corrective measures

This unprecedented wave of restructuring will have unequal effects on many fronts, including skills, gender, age, economic activity and region. Sectoral differences are particularly high.

The energy and automotive sectors will be the ones most affected by the decarbonisation drive from climate and environmental regulations at European and national levels. While coal has no future and coal-dependent jobs will be gone, the automobile does have one, albeit in quite a different form from the one we know.

In the coal-based power sector the majority of currently existing jobs will disappear in a decade and the regional effects will be harsh[5], as over 90% of coal jobs are concentrated in ten NUTS 2 regions, four of them in Poland.

With a more than 5% share of total European employment, the automotive sector is a key employer. For the car industry, the demise of the combustion engine and the electrification of the powertrain will require the development of new competences, skills and forms of work organisation. These will have a substantial impact on the comparative advantages held by certain nations and manufacturers[6].

The renewable energy sector, construction and low-carbon infrastructure are expected to deliver most of the job creation[7]. However, transitional policies should consider the local dimensions of the transition - the places where jobs are lost and created are not necessarily the same and relocating labour is not straightforward.

Jobs and skills

Climate change policy will have a major impact on jobs, their skill contents and how they are performed.
The transition will come along with increasing demand for skills in the renewable and cleaner energy sector, energy and resource efficiency, digital competences, STEM knowledge to trigger innovation and breakthrough technology, greener construction methods, city planning and design, technical competences in adaptation, waste

management, maintenance and repair technologies to reduce resource exigency as well as boost circular economy practices, to name a few[8].

To match the rising demand in specific skills and competences for the green transition, training programs and education curricula need to be adapted to the needs of the labour market. Public sector and businesses could cooperate to adapt the training and education programs.

Training, reskilling and upskilling should be made available to the wider workforce and in a flexible format to the extent possible (eg. online or flexible hours) to ensure that nobody is left behind and attract new talents to green jobs, avoiding skill gaps.

Working time and work conditions will also be impacted by climate change and environmental degradation. For example, extreme and frequent heatwaves will necessitate reorganization of working time in key sectors or equipment of air conditioners will be needed to provide appropriate health and care services in regions experiencing adverse climate effects[9].

Distributional effects

Effective climate policies can only be based on a comprehensive policy framework that include regulation, standards, taxes and market mechanisms in a balanced manner. While market mechanisms – such as the EU's Emissions Trading Scheme[10] - that set price signals to market actors are one important element of this in changing investment and behavioural patterns, they can only have the desired effects in well-functioning markets, but current energy markets are far from that.

Moreover, the signals themselves have significant regressive distributional effects, disproportionally affecting low-income households, for whom fuel and transport consumption make up a higher share of their income[11].

Poorer households also have less capacity to change, as while low-carbon products (electric vehicles, rooftop solar panels, and so on) may have low operating costs, they tend to have high, upfront capital costs – presenting a hurdle for households with little access to cheap capital.

Certain vulnerable groups are likely to be affected more than others during the transition. For example, climate change induces gendered effects as men are disproportionately employed in polluting sectors.

This can imply mitigating effects for women: while it can result in overall poverty for the household as men lose jobs, it might also encourage women to enter into the labour force for paid employment – yet with concerns about job quality – to support household income.

However, there is also wide evidence pointing to disproportionate vulnerabilities – such as having fewer resources at disposal, reduced access to education as well as being frequently excluded from information and decision-making processes – faced by women during green transition[12]. Just transition must mean also empowering women and addressing these structural inequalities.

Another group experiencing vulnerabilities is migrants. For one, most of the foreign-born workers are employed in relatively low-paying and polluting sectors and have no or only limited access to training to upskill towards transition to low-carbon economy[13].

The other aspect relates to the future – both internal and international – migratory movements towards Europe as a result of climate emergency. Both of these aspects point to the importance of targeted social and labour market policies to manage flows, ensure successful socioeconomic integration and just transition for everyone including migrants. This would contribute to global climate justice as the ones most adversely impacted by climate change are not the main contributors to it.

Fundamental rights

The environmental, social and economic effects of climate change and related mitigation policies threaten the enjoyment of fundamental human rights[14]. These include basic social and economic rights, widely recognised in international and European human rights instruments and national constitutions[15]. They constitute entitlements to basic conditions for a decent human life, without which it is impossible to speak of a 'just' transition.

Both the distributional and employment consequences of climate change policies could affect various basic rights such as the right to work, the right to just working conditions, the rights to an adequate standard of living and to protection from poverty and social exclusion.

As the burdens of the transition fall disproportionately on those who are already most vulnerable, disparate impacts of policies along the axes of gender, ethnicity, migrant status, disability or other protected status could impinge on the right to equality and non-discrimination.

Threats to fundamental rights in global supply chains arise in the context of delivering the resources and technology necessary for decarbonisation[16].

At the same time, fundamental rights can provide a normative framework for the basic elements – *necessary but not sufficient* – of just transition policy. Aside from the rights mentioned above, ensuring respect for rights to vocational training, fair remuneration, social security, equal opportunities, and collective bargaining – and others – could constitute the foundations of a strategy to address the impacts of the green transition on workers and citizens more broadly.

Discussion of fundamental rights is, however, largely absent from the European Green Deal and Fit for 55 package. Reference is made to the European Pillar of Social Rights[17], a list of 20 principles without binding legal effect. There is no mention of the EU's own Charter of Fundamental Rights[18], nor other international legal norms.

The Recommendation could be an opportunity to strengthen the link between the just transition agenda and long-standing frameworks for the protection of fundamental labour and social rights, such as the European Social Charter or the core Conventions of the International Labour Organization.

Citizen participation

Climate protest movements such as Fridays for Future, as well as the tens of thousands of people who took to the streets during COP26 make clear that citizens want to have their voices heard when it comes to climate change.

A key challenge for a procedurally fair green transition is to ensure that the public, and especially the most affected communities and citizens, have an opportunity to participate in decision-making.

Participation is a means to empowering and fostering cooperation with affected communities and contributing to better outcomes and increased democratic legitimacy. In the labour context, this means meaningful participation by workers and social dialogue.

Climate citizen assemblies, convened in France, the UK and some other European countries over the last years are gaining popularity as a forum for public debate on climate change. The on-going Conference on the Future of Europe includes a panel on climate change, too.

But simply providing a forum is not enough – decision-makers also have to listen. Transparency, information and capacity-building are crucial to meaningful involvement, as are active steps to include marginalised groups and to ensure diversity across factors such as gender, ethnicity, age, socio-economic status or geographic location.

The way forward

Getting climate change under control is in the interest of humanity, the unprecedented restructuring process economies need to go through in a few decades to reach net zero emissions is policy-driven. These policies will have differential effects on people with different socio-economic characteristics, and policymakers have a dedicated responsibility to address these.

A just transition means that addressing both the employment and distributional effects of a transition to net zero should be an integral part of the package and not supplementary corrective measures.

The EGD has recognised this, but in practice social and employment policy initiatives have remained fragmented and additional. This shortcoming has become very clear with the announcement of the Fit for 55 package in July 2021.

Europe now has a Just Transition Fund with limited resources, dedicated mostly to helping coal regions manage the social and employment effects of coal phase-out. This is very important but reaches a small fraction of people affected by decarbonisation.

The newly announced Social Climate Fund has a very specific target, namely to fend off the detrimental distributional effects of a new emissions trading system for buildings and transport, but even for that it may not be enough[19]. Sectors that are highly affected, the automotive sector and energy intensive industries do not have dedicated instruments and a fund.

European-level labour market and social policy initiatives should provide guidance to member states to manage change, and the proposed Council Recommendation is one way of doing so. In this context, 'leaving no-one behind' should be more than a slogan and translate into concrete measures.

Contrary to the declarations, just transition policies are not yet an integral part of the European Green Deal agenda and of the more concrete Fit for 55 policy package. A comprehensive just transition policy framework should include the following elements:

1. Support for workers in the transition to new jobs with measures targeted to specific sectors (automobile, energy intensive industries, etc.) tailored to national and regional specifics.

2. Deal with the distributional effects of climate policies with targeted measures against energy and transport poverty, supporting and facilitating the affordability and accessibility of low carbon technologies to lower income households (retrofitting of buildings, access to renewable energy, vehicle fleet change, developing public transport).

3. Regional development initiatives to help carbon intensive regions towards a sustainable low-carbon economy.

4. Promote social dialogue and stakeholder involvement at all levels (EU, national, regional and plant level) in managing change towards a zero-carbon economy, including meaningful involvement by citizens.

5. Make sure that newly created green jobs are also good jobs in terms of contract type, social security, wages and working conditions in line with the ILO decent work agenda.

Today a large part of the workforce is in fear of change, a concern that is justified in a labour market environment characterised by increasing precariousness. As long as 'change' remains fearful, the biggest transformation since the industrial revolution ahead of us cannot succeed.

Inclusive and comprehensive social and economic policies are therefore essential to securing social justice, resilience and sustainability. ■

Mehtap Akgüç, Kalina Arabadjieva and Béla Galgóczi are Researchers at the European Trade Union Institute

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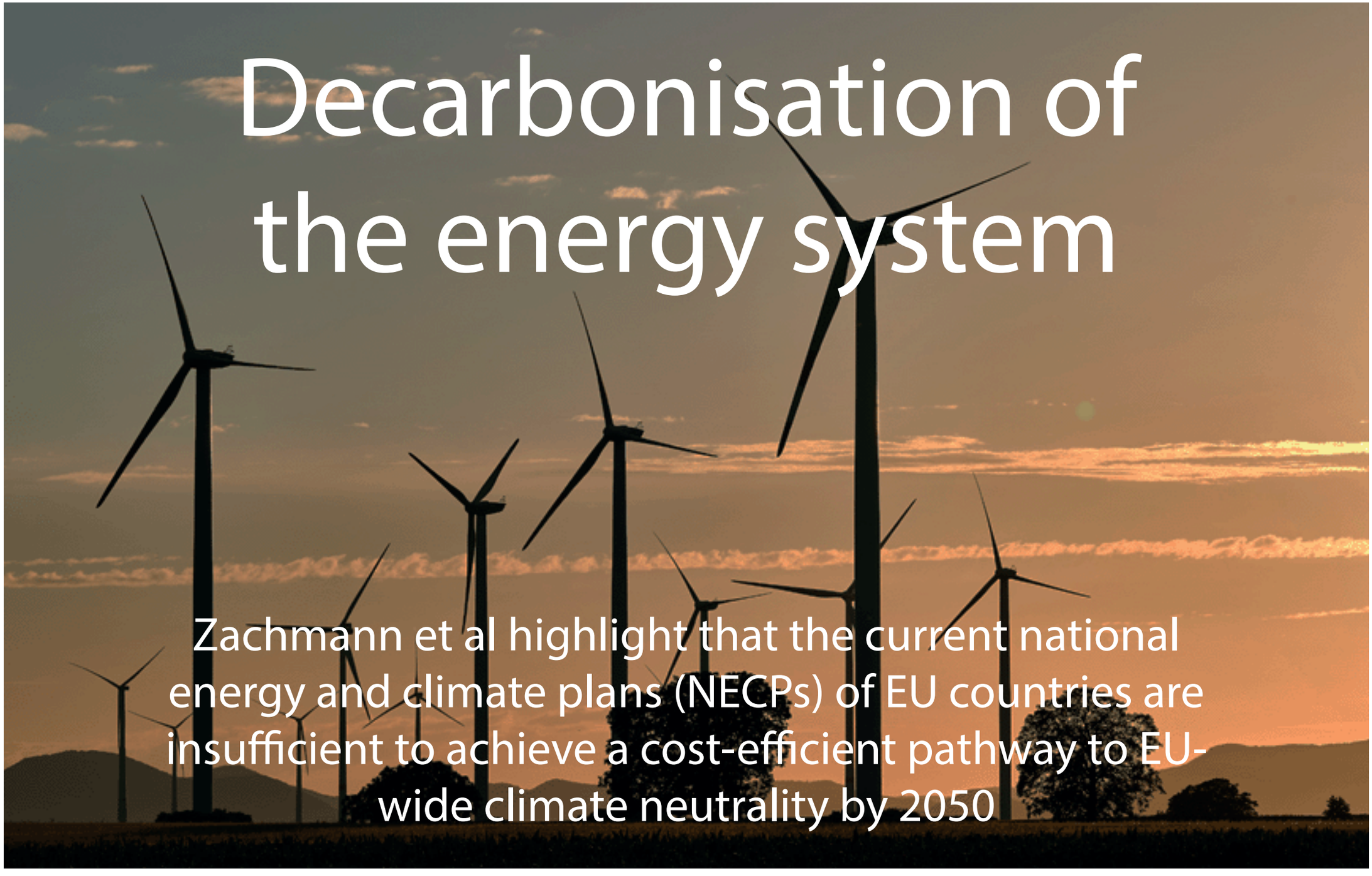
Decarbonisation of the energy system



Zachmann et al highlight that the current national energy and climate plans (NECPs) of EU countries are insufficient to achieve a cost-efficient pathway to EU-wide climate neutrality by 2050

Summary

Three quarters of the European Union's greenhouse gas emissions stem from burning coal, oil and natural gas to produce energy services, including heating for buildings, transportation and operation of machinery. The transition to climate neutrality means these services must be provided without associated emissions.

It is not possible today to determine tomorrow's optimal clean energy system, largely because the cost, limitations and capability developments of competing technologies cannot be predicted. Energy systems with widely diverging shares of 'green fuels', in the form of electricity, hydrogen and synthetic hydrocarbons, remain conceivable.

We find the overall cost of these systems to be of the same order of magnitude, but they involve larger investments at different stages of value chains. A large share of synthetic hydrocarbons would require more investment outside the EU, but less in domestic infrastructure and demand-side appliances, while electrification requires large investment in domestic infrastructure and appliances.

Current projections show an overall cost advantage for direct electrification, but projections will evolve and critical players may push hard for alternative fuels. Policy will thus play a major role in shaping this balance.

Political decisions should, first, push out carbon-emitting technology, primarily through carbon pricing. The more credible and predictable this strategy is over the coming decades, the smoother will be both divestment from brown technologies and investment in green technologies.

Second, policy needs to help ensure that enough climate-neutral alternatives are available in time. Clear public support should be given to three system decisions about which we are sufficiently confident: the massive roll-out of renewable electricity generation; the electrification of significant shares of final energy consumption; and rapid phase-out of coal from electricity generation.

For energy services where no dominant system has yet emerged, policy should forcefully explore different solutions by supporting technological and regulatory experimentation.

Given the size and urgency of the transition, the current knowledge infrastructure in Europe is insufficient. Data on the current and projected state of the energy system remains inconsistent, either published in different places or not at all. This impedes the societal discussion.

The transition to climate neutrality in Europe and elsewhere will be unnecessarily expensive without a knowledge infrastructure that allows society to learn which technologies, systems, and polices work best under which circumstances.

1 Introduction

For the European Union to become the first climate-neutral continent by 2050, the decarbonisation of the energy sector will be crucial. Production and use of energy accounts currently for more than three quarters of the EU's greenhouse gas emissions[1], and most of the EU energy system still relies on the combustion of oil, natural gas and coal.

Meanwhile, the potential to reduce demand for energy services is most likely limited and therefore most energy services currently based on fossil-fuels need to be replaced by climate-neutral alternatives. One of the open issues is the relative role of different non-fossil fuels[2] – primarily electricity, hydrogen and synthetic methane – in final energy use.

We present three extreme scenarios to highlight the consequences of different energy-policy choices: first, the full electrification of the economy; second, the widespread use of hydrogen; and third, widespread use of synthetic methane. In practice, a combination of the three scenarios is most likely to be implemented, and the three scenarios are not equally probable.

Irrespective of the choices made, we emphasise three main 'no-regret' policies that should in any case be implemented[3]: (a) rapid deployment of more renewable electricity generation, (b) electrification of significant shares of final energy uses (such as heating and transportation), and (c) the swift phase-out of coal.

Our analysis also highlights that the current national energy and climate plans (NECPs) of EU countries are insufficient to achieve a cost-efficient pathway to EU-wide climate neutrality by 2050. Consequently, a strong commitment framework is needed to ensure that NECPs are aligned with European targets.

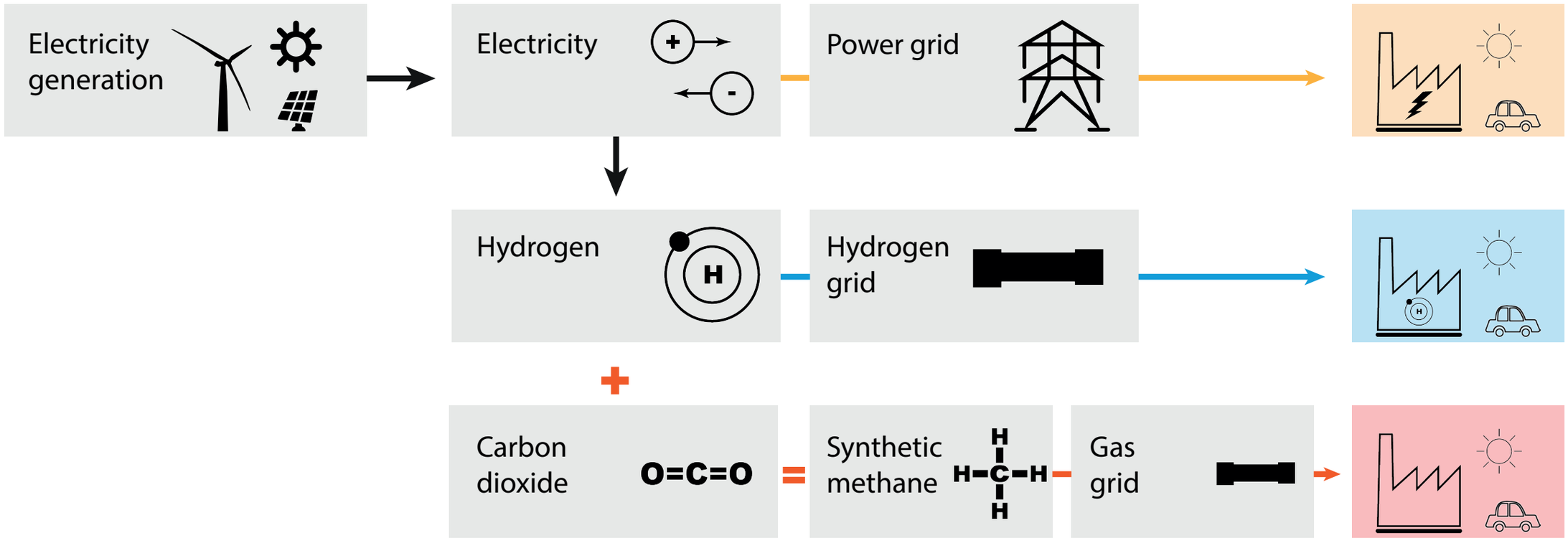
2 Different scenarios

How the European energy system will develop over the next decades is highly uncertain. In particular, the roles in the future energy mix of hydrogen (H_2), synthetic methane (CH_4) and their derivate products (such as ammonia) remain hard to predict. These fuels can be produced using renewable electricity (and/or biomass). On this basis, they are referred to as 'green'.

Hydrogen can be produced from electrolysis of water (Figure 1). Synthetic methane can then be produced via an additional electrochemical process known as the methanation of hydrogen. In this process, hydrogen and carbon dioxide are used as inputs (Götz *et al* 2016).

Political decisions, particularly on agreements with third countries for the future import of green fuels, act as commitment devices

Figure 1. Simplified overview of a low-carbon energy system



Source: Bruegel

If the inputs are 'clean' over their lifetime – for example, hydrogen obtained from electrolysis using renewable electricity, and CO_2 captured from the atmosphere – the final product is considered greenhouse-gas-neutral. The additional methanation process makes synthetic methane more electricity-intensive and expensive than hydrogen (Evangelopoulou *et al* 2019).

Alternatively, synthetic methane can be produced from biogenic sources, ie. by increasing the methane concentration in biogas to almost 100 percent, but the potential for biogas production in the EU is rather limited[4]. The resulting synthetic methane might replace fossil natural gas, which is also almost pure methane.

The main advantage of synthetic methane is that it can be fed into the existing natural gas transportation and storage infrastructure. Furthermore, it requires less investment on the demand side than hydrogen or direct electrification, since current natural gas heating systems or turbines could be fuelled with synthetic methane in the future.

However, beyond this initial capital stock advantage, synthetic methane appears significantly less attractive than hydrogen or direct electrification. There would be high investment costs for production facilities[5], and substantial amounts of electricity required to run them, because of the poor overall energy efficiency[6].

The energy efficiency of hydrogen produced from a unit input of renewable electricity is higher. However, hydrogen cannot be pumped through existing natural gas pipelines, which would need to be retrofitted to transport hydrogen safely.

Our three scenarios illustrate the uncertainty around the future energy system and find robust, no-regret developments that appear in all scenarios. We assume a plausible level of energy demand in 2050 and make

extreme assumptions about the contribution of each of the three fuels to meeting this demand. We distinguish: a) an 'all-electric world'; b) a hydrogen-dominated world in which hydrogen demand is so great that hydrogen imports are required; and c) a 'green gases' world, in which synthetic methane plays a major role as a replacement for natural gas.

All scenarios rely on extensive electrification of energy supply and demand, and a phase-out of coal and fossil natural gas.

We assess the future energy system in 2030 and 2050 according to these three scenarios. We assume the same useful energy demand in all scenarios, but this demand would be satisfied with different technologies and from different sources (Box 1).

In addition, the role of energy imports varies across the scenarios; domestic energy demand is met from a mix of domestic renewable energy generation and imported fuels. In the scenarios focussing on transition to hydrogen and synthetic methane, energy imports would meet a large share of demand. This implies less demand for electricity generation domestically which is off-shored via production of these fuels abroad (Figure 2).

More importantly, a major increase in renewable electricity generation in the EU is required to achieve the emissions reductions from the energy sector. Figure 2 shows that electricity generation levels must at least double by 2050 compared to today (with potential deployment abroad in the case of energy imports).

We assume that all of the growth will come from renewables, mostly wind and solar. Electricity generation in the EU from coal and natural gas will have to be phased out in line with international commitments such as the Glasgow Climate Pact[7].

Table 1. Scenario assumptions

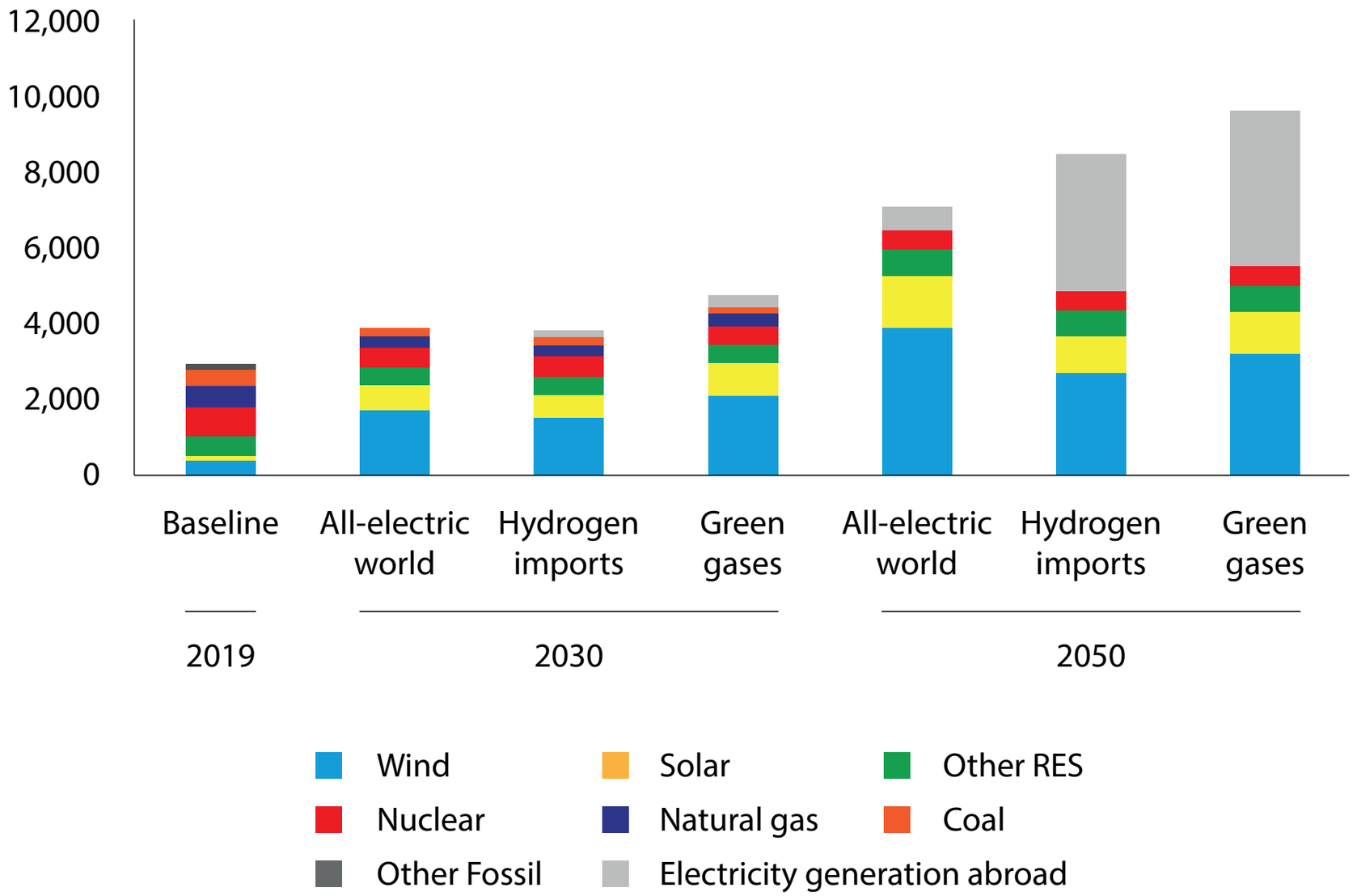
	Green gases	Hydrogen	Renewable electricity
All-electric world	Gas transmission and distribution infrastructure is largely decommissioned	Hydrogen clusters with very concentrated pipeline network; some hydrogen storage for electricity seasonal storage	Significant upgrading and expanding of European transmission and distribution grid
Hydrogen imports to fuel EU	Gas transmission and distribution infrastructure is largely repurposed (ie. green gas is consumed where it is produced)	Meshed European transmission infrastructure connected to import points and hydrogen distribution grids in repurposed methane pipelines, hydrogen fuelling station infrastructure	Electricity distribution only strengthened where no hydrogen is available; electricity transmission modestly strengthened
Green gases in old pipelines	Gas transmission and distribution infrastructure is largely maintained and used by green methane	Hydrogen clusters with very concentrated pipeline networks; some hydrogen storage for seasonal electricity storage	Electricity distribution only strengthened where no methane is available; electricity transmission modestly strengthened

Source: Bruegel

Box 1. Scenario analysis methodology

For each scenario, we calculated the required investments (2020-2030, 2030-2050) in the energy sector, ie. additional power generation capacities, investments in electrolyser and transmission grids, and investments in hydrogen grids – but not the cost of demand-side appliances. It is impossible to have a clear ordering of the cost of appliances that serve the same purposes but use different fuels. The corresponding energy system investment unit costs are taken from the ASSET project (Capros et al 2018). The investment volumes in the different scenarios are calculated based on the assumption that the amount of useful energy required in each sector is the same as that implied in the MIX-55 scenario results developed by E3Modelling (JRC, 2021). 'Useful' energy is the energy service finally made available to users (kilometres driven, square metres heated). As more efficient fuel systems (electricity) require less kWh of input to provide the same service (heating) than less efficient systems (hydrogen), a smaller system is required to provide the same service. For each major final use, we estimated for each fuel the required input. For each scenario, we estimated the share of each fuel in each use type. Based on this, we calculated required inputs of the different fuels for each sector and in total. This allowed us to calculate the necessary transmission and generation capacities. Ultimately, these capacities can be translated into investment figures.

Figure 2. Electricity generation in 2019, 2030, and 2050 in TWh



Note: RES = renewable energy sources.
Source: Bruegel (see Zachmann et al 2021).

The greater role of electricity will be visible in the future through more direct use of electricity in final energy use ('electrification', eg. of transportation) and through the introduction of hydrogen and synthetic methane produced from electricity ('indirect electrification').

Figure 3 shows that direct electrification will play a major role in all scenarios because it is a low-cost way of decarbonising many energy demand areas.

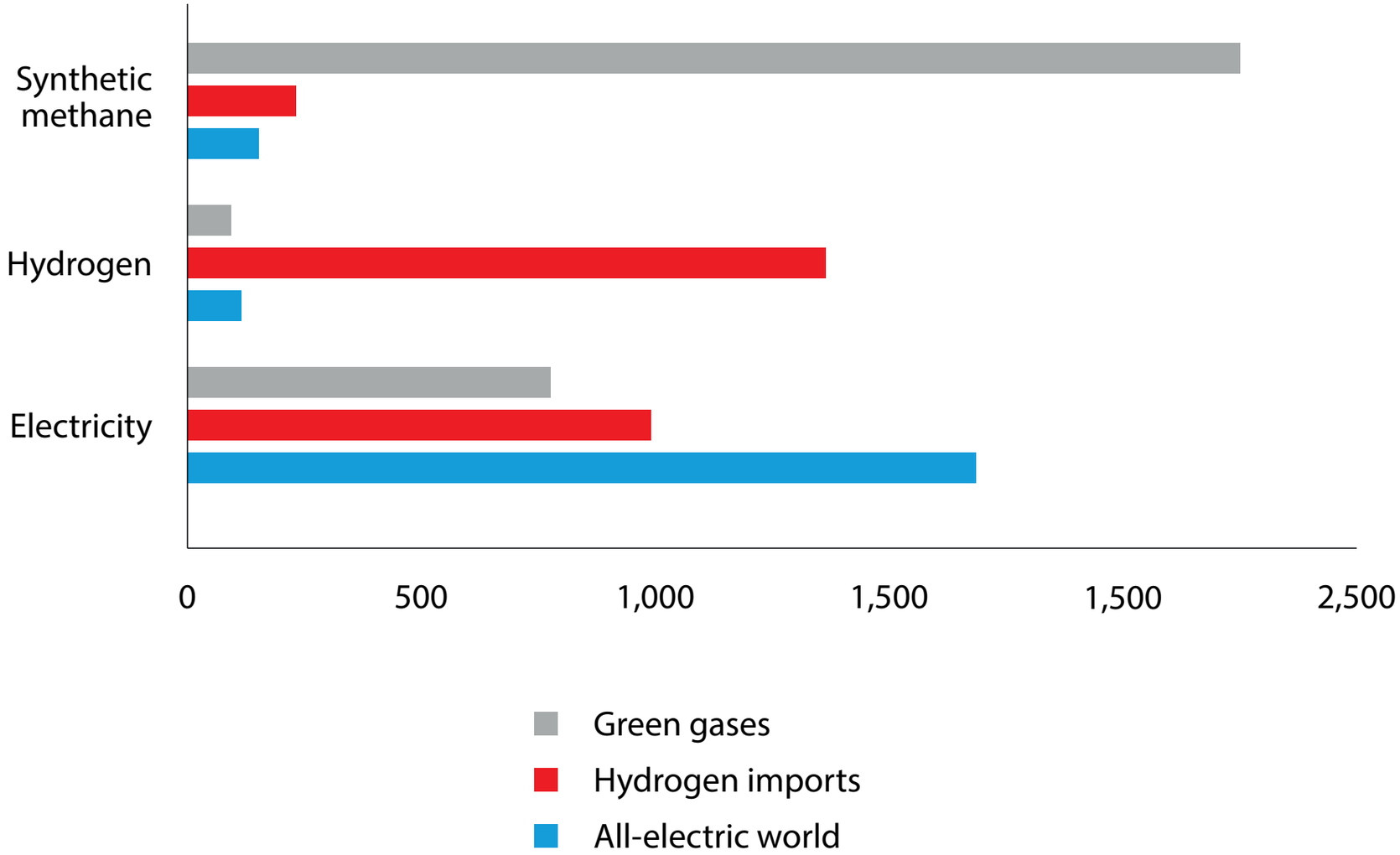
Due to their energy-inefficient production processes, hydrogen or synthetic methane will only become viable bulk-energy carriers if low-carbon electricity generation in Europe (or in the interconnected neighbourhood) turns out to be severely limited.

Even assuming learning and cost decreases, only small amounts of hydrogen and synthetic methane are no-regret decarbonisation solutions[8] for sectors where electrification is impossible or hard to achieve.

The scenario approach helps us to investigate the relative costs of each decarbonisation option. Clearly, there is too much uncertainty around key parameters (learning rates, future appliance costs, supply constraints, etc) to be able at this point to determine the optimal future energy system. However, some insights are gained from comparing the three scenarios.

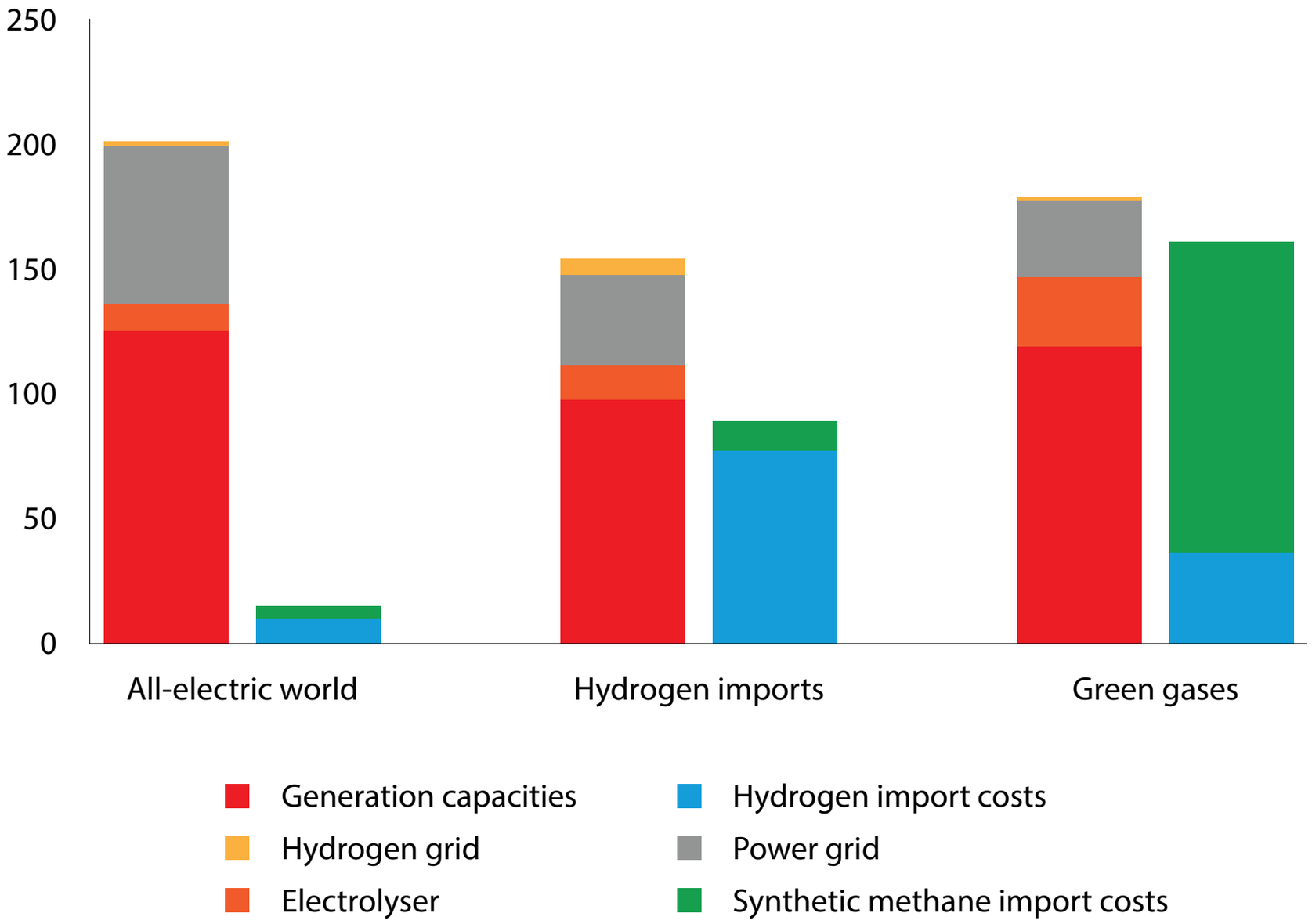
First, different scenarios have different investment needs (Figure 4). For example, the 'all-electric world' scenario with widespread electrification requires massive expansion of electricity grids, even more than in the other scenarios because of the interconnection of all possible demand areas.

Figure 3. Change in final energy consumption by fuel between 2020 and 2050 (TWh)



Source: Bruegel (see Zachmann et al 2021).

Figure 4. Annualised investment costs (left-hand bars) and fuel import costs (right-hand bars) in the three scenarios, 2021-2050, € billions



Note: In each case, the left bar indicates the average annual investment cost and the right bar the annual fuel import cost.
Source: Bruegel.

In contrast, a hydrogen-focused energy system will incur costs for the retrofitting of pipelines to enable hydrogen to be transported.

Second, all scenarios require significant investment in low-carbon power supply. Expansion costs for low-carbon electricity generation are more than half the domestic EU investment costs in all scenarios.

Third, the need for domestic generation investment would be even greater in the 'hydrogen imports' and 'green gases' scenarios, unless much of the electricity production is offshored and imported in the form of hydrogen and synthetic methane. This leads to high import costs (Figure 4).

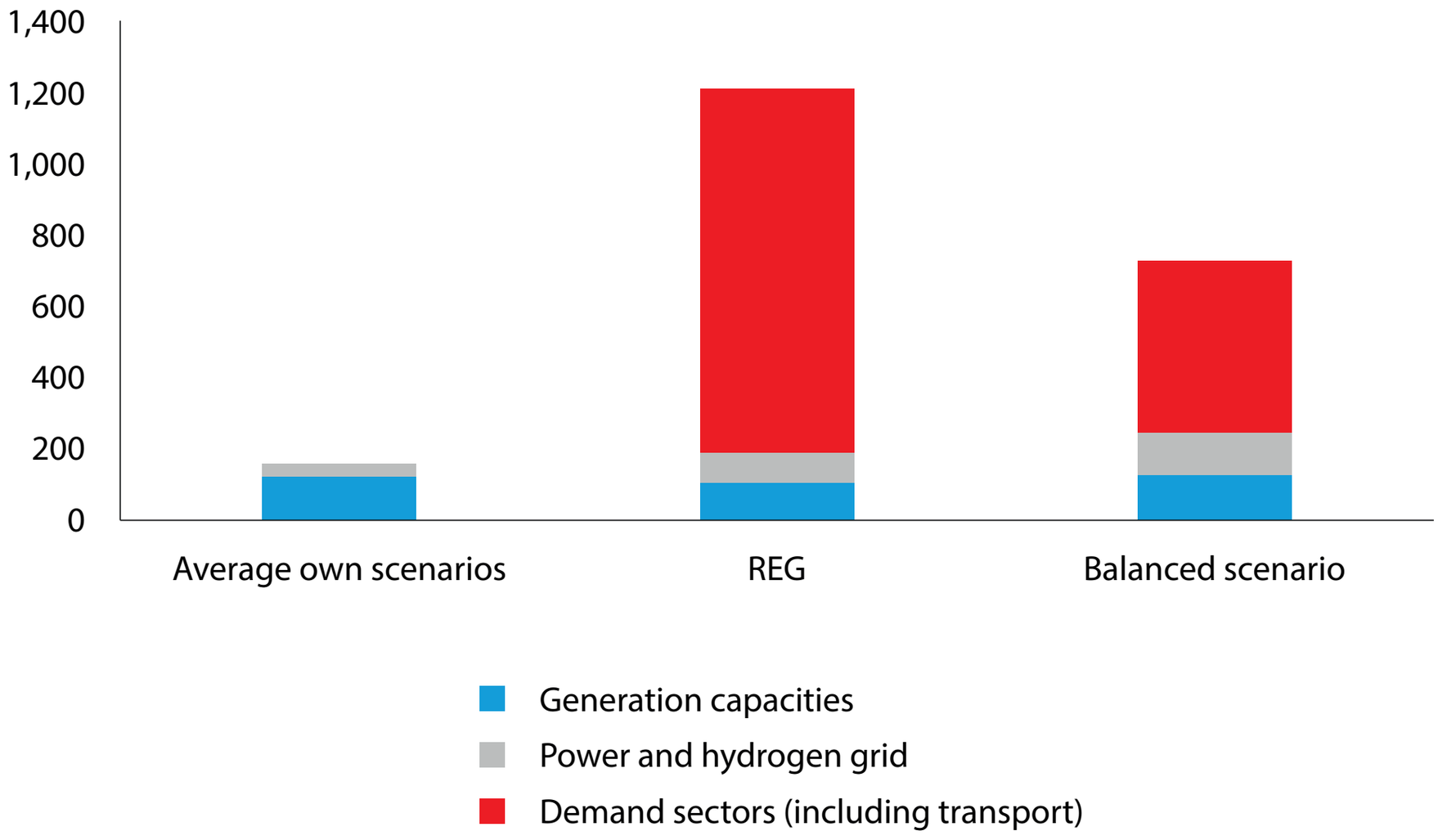
In sum, electrification is a no-regret option across all three scenarios. In addition, the scenario focusing on widespread electrification has the lowest cost of the three scenarios. From a cost perspective, hydrogen use is more likely than synthetic methane use. Hydrogen can plausibly be a complement to widespread electrification, with hydrogen helping to decarbonise demand areas where electrification is hard or costly (eg. aviation).

An energy system biased towards synthetic methane would be the costliest choice. The advantages of re-using existing natural gas infrastructure would not compensate for the high investment and operation costs of synthetic methane production facilities.

3 Encouraging the needed private investment

While our scenario analysis is focussed exclusively on the supply-side, previous modelling studies have shown that the vast majority of investment needs are on the demand side (Figure 5).

Figure 5. Required average annual investments (2031-2050)



Note: REG (regulatory-based) scenario comes from the European Commission (2020a); Balanced scenario is from Evangelopoulou et al (2019). All investments and costs are depicted in billions of 2020 €. Our scenarios do not consider demand-side investments.
Source: Bruegel.

Households must purchase clean vehicles and install clean heating systems, and firms must invest in clean production processes. Figure 5 shows that demand-side investment exceeds supply-side investment expenditures by a factor of at least five.

In order to provide the private sector with sufficient confidence to make these investments, policy must pursue two complementary tracks. First, credible signals should indicate that the energy use of fossil fuels and the investment in the appliances that consume them will be relentlessly regulated out of the market. Simultaneously, policy should demonstrate that alternative low-carbon fuels will be available and cost-effective.

These policy tracks complement one another. Without convincing signals that fossil fuels will not be available in the future, investors will not be motivated to invest capital in switching, preferring instead to wait and see[9]. But announcing only fossil fuel phase-outs without credible commitments as to what new energy systems will be made available also will not work.

Social and political constraints imply that governments will ultimately never follow through on fossil-fuel bans or high carbon prices if no alternatives are in place to provide essential services (ie. governments will not permit household fossil energy bills to grow too large without alternatives available[10]).

3.1 Ending the use of fossil fuels

In our discussion on ending the use of fossil fuels, we differentiate between 'neutral' (no-regret) choices and policies that favour one of the described scenarios.

Technologically-neutral policies can contribute to ending the use of fossil fuels. These are policies that keep all pathways open and do not favour any clean fuel.

They include for example: greenhouse gas pricing, which increases the costs of carbon-intensive production, but is neutral about its alternatives[11]; bans on/strict standards for internal combustion engine vehicles and gas boilers, which phase out the use of fossil fuels but do not prescribe specific alternatives; and mandates to stop fossil-fuel investment that would only be economically viable if there is still unabated combustion after 2045, which do not prescribe a specific replacement technology.

However, such technology-neutral policies are not necessarily sufficient to end the use of fossil fuels, as shown by coal. There exists no foreseeable future in which coal will play any (significant) role in the European energy system.

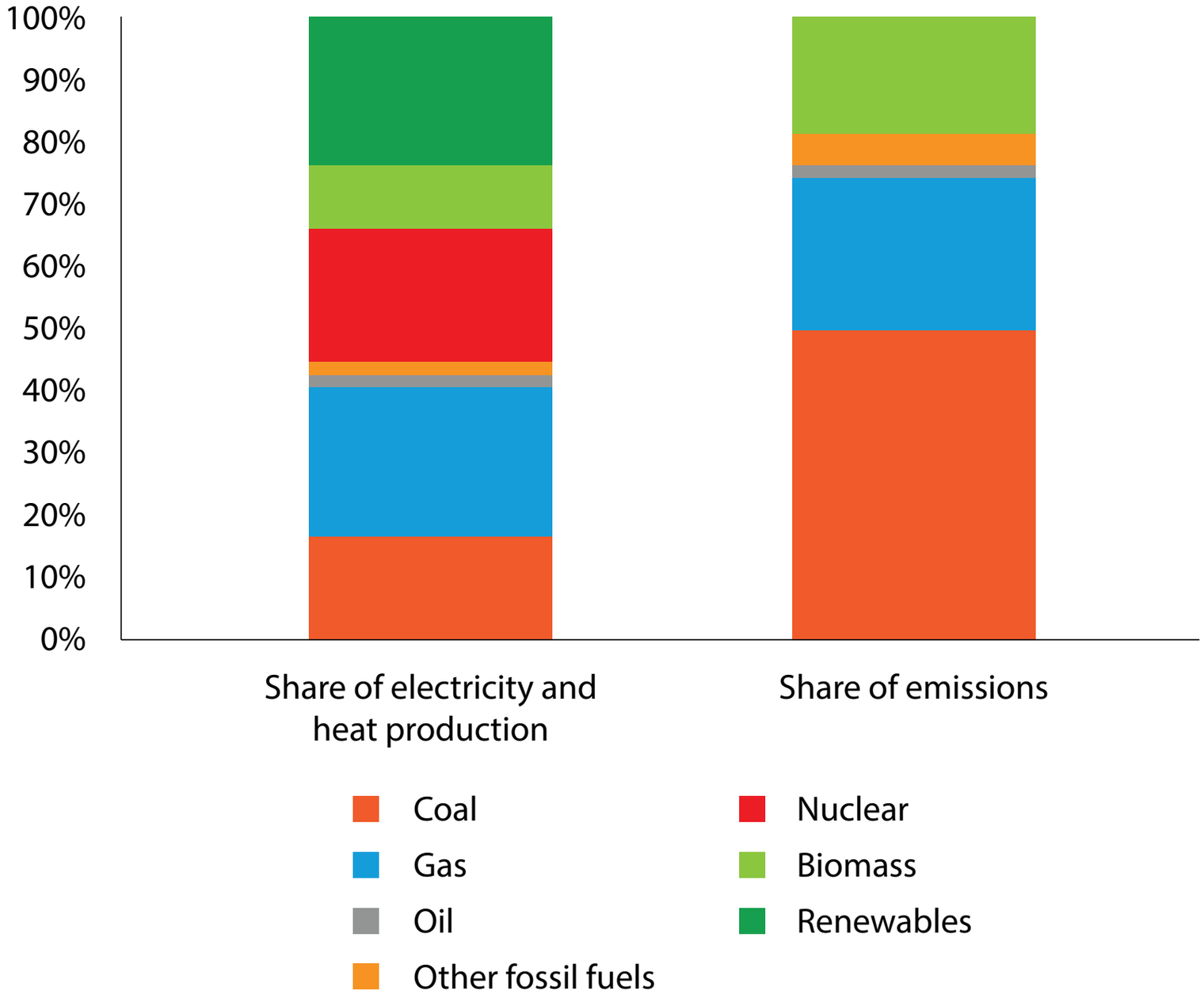
Especially in electricity and heat production, which presently uses almost half of hard coal[12] and almost all lignite in the EU, a coal phase-out must be achieved swiftly to not over-exploit Europe's carbon budget and to maintain international credibility.

Using coal to generate electricity and heat is highly emissions-intensive: coal provides only 17 percent of total electricity and heat production in the EU, but generates half of the greenhouse-gas emissions in this sector (Figure 6).

The importance of coal in electricity and heat production varies across the EU, with many countries – predominantly in North and West Europe – having no or almost no coal in their systems, and a few countries – in Central and East Europe – with very high shares (Figure 7).

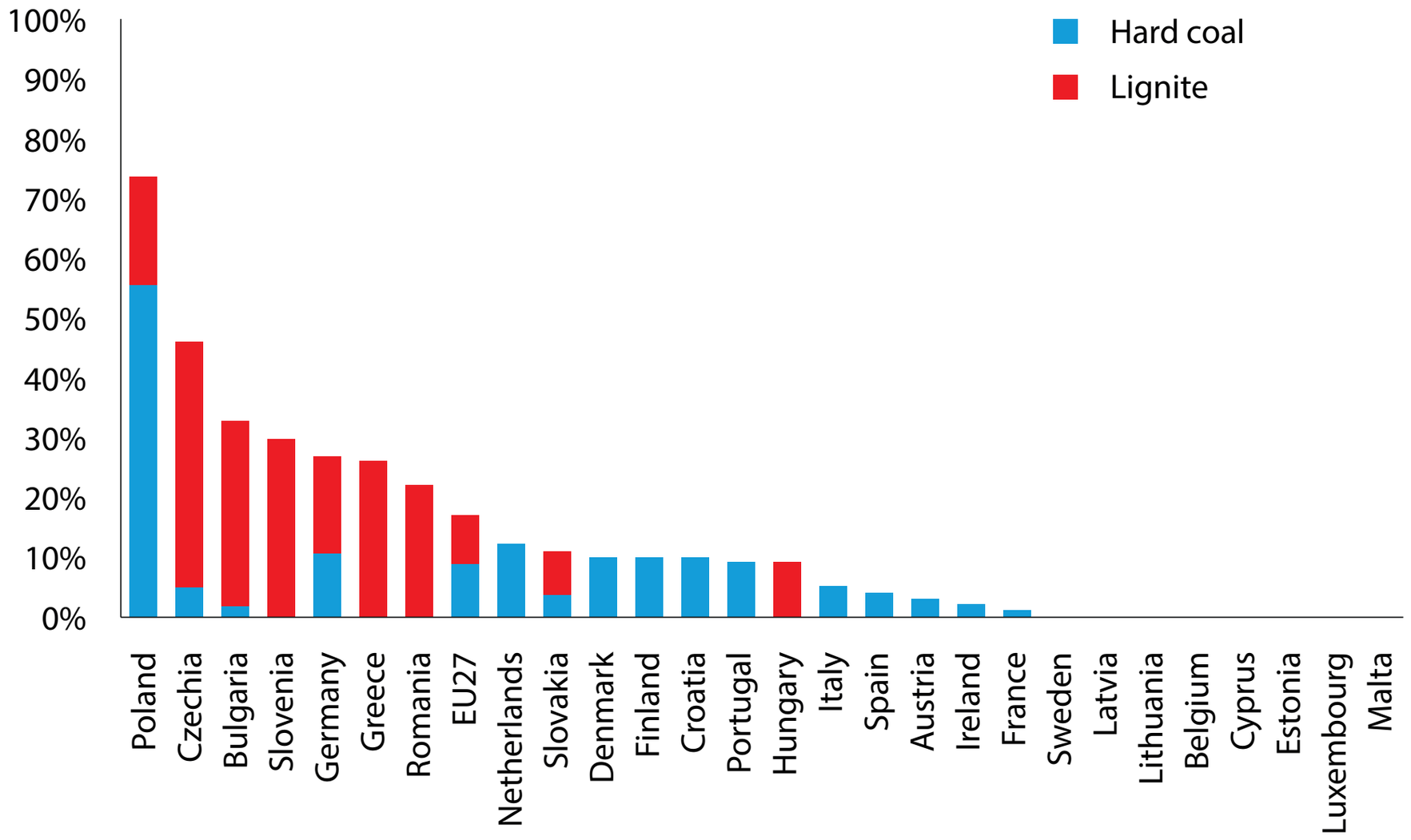
Seven EU countries (Poland, Czechia, Bulgaria, Slovenia, Germany, Greece and Romania) have coal shares above 20 percent. On the other hand, twelve EU countries have shares around 10 percent. Germany has the fifth largest share of coal, but due to its size has the second-largest coal-sector in the EU.

Figure 6. Share of coal in emissions and electricity and heat production (2019)



Source: Bruegel based on Eurostat (ngr_bal_peh) and EU CRF Tables reported to UNFCCC.

Figure 7. Share of coal in electricity and heat production in the EU (2019)



Source: Bruegel based on Eurostat (dataset ngr_bal_peh).

Because of an annual reduction factor, the annual issuance of emission allowances into the EU emissions trading system (ETS) will continue to decline, reaching zero in less than 30 years.

This provides a clear and powerful signal to national and regional administrations and companies that coal combustion will have to be phased-out.

Regarding the short-term operation of existing coal plants, increasing carbon prices affect the equilibrium[13] between coal, gas and electricity prices – incentivising a reduction in the operating hours of coal units.

In longer-term decision making, tightening emission budgets will not only prevent new-builds of coal assets but also encourage the early closure of existing ones.

However, if this process is left entirely to market forces and individual operators, the resulting closure schedule is likely to be inefficient. Political uncertainty over future policy direction, and notably the ability of large companies to influence this, implies that companies face some incentive to continue running coal plants at negative profit margins to avoid paying large decommissioning costs today.

In this case, a strict time schedule for phase-out is required to avoid the postponement of closure decisions. On the other hand, rapid and uncoordinated plant closures may threaten (regional) security of supply.

Therefore, a geographically determined phase-out schedule is crucial to manage the physical limitations of electricity grids as dispatchable generation drops offline. The need to manage the regional economic and social repercussions also calls for a planned phase-out.

Most EU countries already have national coal phase-out policies, usually with a phase-out schedule and a terminal date for coal-fired power plants.

Only a few EU countries in central and eastern Europe do not have an end date (including Bulgaria, Slovenia, and Croatia), or have a very late end date (such as Poland, 2049, and Germany, 2038)[14], for phasing out coal from electricity generation.

Finally, without a clear vision of publicly acceptable and competitive alternative power supplies, the phase-out plans are not credible. Here, public support for alternatives reduces the cost of the transition (eg. through accelerated learning) and also serves as a public commitment.

High carbon prices are thus an efficient driver of a coal phase-out, but can only be credible and hence successful if it is made sure realistic alternatives will be phased in at the same time.

3.2 Ensuring availability of low-carbon alternatives

Policy must focus not only on ending the use of fossil fuels, but also on providing credible low-carbon alternatives. To do so, certain actions are essential under all scenarios.

The first is to build out low-carbon electricity generation capacity. At least an additional 2,000 terawatt hours of domestic electricity generation in 2050 compared to 2019 is required in all scenarios, which is approximately a 70 percent increase.

Second, in certain areas, direct electrification appears likely to be the optimal solution, including for passenger vehicles[15], large shares of household heating[16] and low-temperature industrial heat[17].

Here, policymakers should be willing to do what is needed to provide the policy framework (infrastructure, regulation, support for research, development, demonstration and deployment) to enable the fast roll-out of decarbonised systems.

This does not imply that policy will blindly favour one system, but that the burden of proof will be on alternative technologies to provide not-yet-seen evidence of their superiority. Direct electrification will work for a substantial percentage of EU's decarbonisation needs and this should be swiftly exploited.

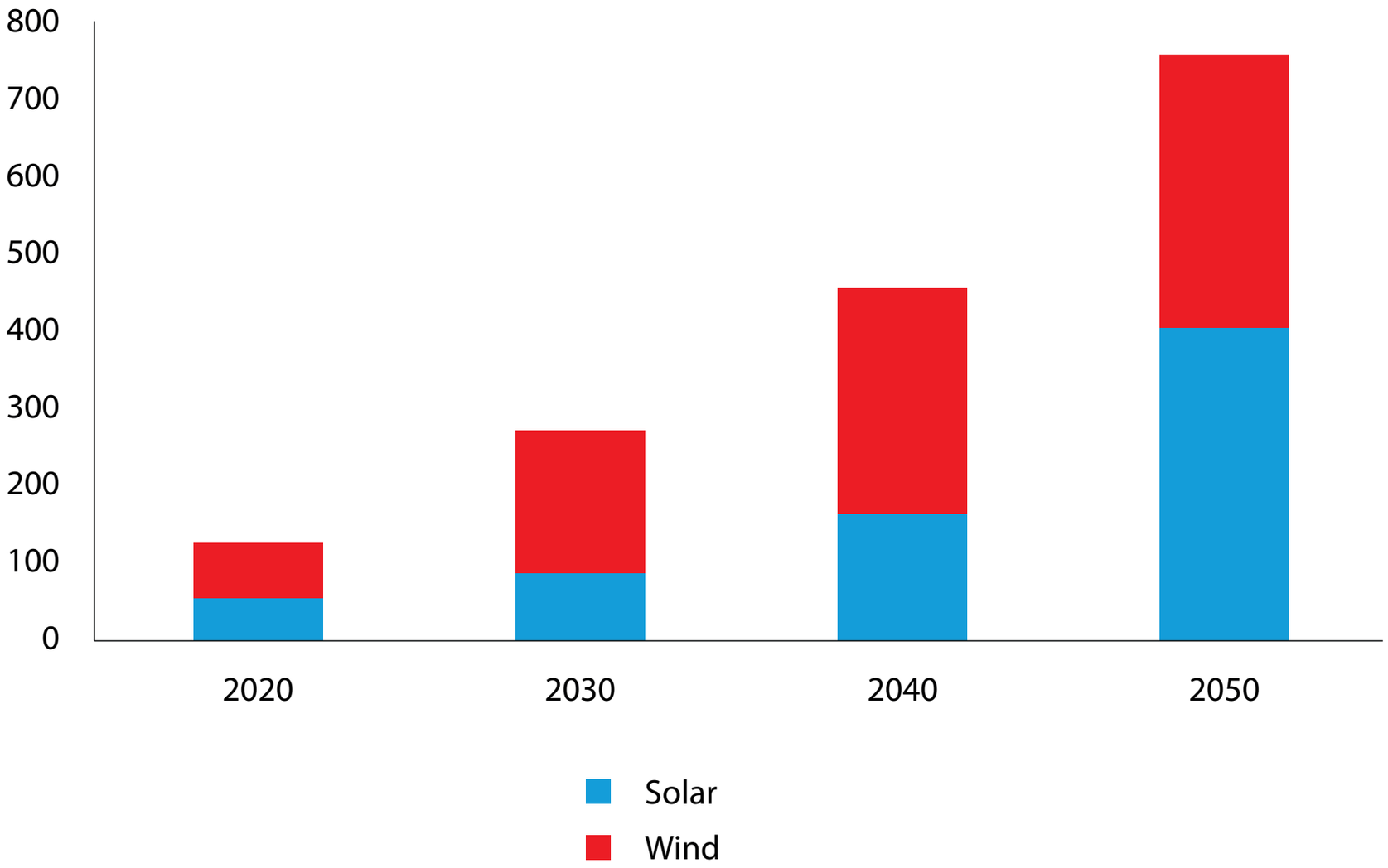
The coal phase-out is a prime example highlighting the need for significant deployment of new low-carbon electricity capacity. The deployment record in the past two decades indicates that renewable electricity is the cost-efficient option[18].

However, as wind and solar PV power plants have structurally lower full-load hours (hours in which the entire power capacity of a power plant is used), the overall capacity of the power plant fleet has to be substantially increased to provide the same amount of energy.

Among EU countries, the need to deploy renewable power plants in order to phase-out coal varies. Countries with a low share of coal in electricity and heat production will be able to replace coal with modest investments in additional renewable energy capacities.

Countries with high shares of coal (especially Poland, Czechia, Bulgaria and Slovenia) must invest aggressively in renewable energy capacities so they can phase-out coal in the next decade. Renewable capacities need to be multiplied by a factor of at least six by 2050 in the seven most coal-intensive EU countries (Figure 8).

Figure 8. Wind and PV power plant capacities needed for decarbonisation in the seven most coal-intensive EU countries (in GW)



Note: The data covers EU countries with significant shares of coal in electricity and heat production: Bulgaria, Czechia, Germany, Greece, Hungary, Poland, Romania and Slovenia.
Source: Zachmann et al (2021).

However, all EU countries need to increase renewable energy deployment rates substantially to achieve climate neutrality by 2050.

As the coal phase out progresses, gas-fired power plants could play an important transitional role. They have relatively low capital costs (about half that of coal plants) and can be dispatched more quickly than coal plants when needed to back-up fluctuating wind and solar PV power plants. They can thus support the system for the few days/weeks of the year when demand exceeds renewable energy production.

However, new gas power plants risk becoming stranded assets if they cannot be operated commercially under strict carbon-neutrality constraints.

Depending on the needs of the future power sector, three different types of gas fired power plant are conceivable: 1) plants with relatively low capital costs and low planned load factors, and which can be switched to carbon-neutral fuels such as synthetic methane or hydrogen; 2) plants designed to recover their fixed costs over a short period; 3) very efficient plants with higher load factors that can be commercially operated with carbon capture and storage.

Given the legacy power plant fleet and the decreasing cost of renewables, the first niche currently appears to be the largest. A predictable regulatory environment and a well-functioning electricity market is the best approach to identify efficient solutions.

Beyond these two uncontroversial solutions (direct electrification where appropriate and the massive deployment of renewable electricity generation), the most promising solutions for other energy uses (including significant industry applications, aviation or seasonal energy storage) are less clear.

Hence the approach should be two-pronged: to provide a European and national policy framework encouraging the rapid deployment of the uncontroversial solutions, and encouraging companies to explore in depth different solutions in the less-clear areas.

In the next decade, this two-pronged approach will be particularly important for industry and households (including transport). In these sectors, emissions reductions have so far been too slow; in order to meet 2030 targets, a step change is necessary.

The major focus on these areas in the European Commission's Fit for 55 policy push, and the spending plans of countries under Next Generation EU (Darvas *et al* 2021), reflect this. The policy challenge is to strike the right balance between allowing fair competition between low-carbon technologies while providing enough of a technologically-specific push for the required solutions to be deployed at scale in time.

For comparison, the 2005 launch of the EU ETS placed neutral pressures on the power sector to decarbonise, but was accompanied by the roll-out of massive support schemes for renewable power generation.

These policies favoured the development of those renewable technologies that were already mature enough to compete for subsidies, and were very successful in dramatically bringing down their costs.

Without this complementarity, the ETS would have led to a stronger temporary switch from coal to natural gas, while increasing prices and dependencies might have undermined the political sustainability of European carbon pricing.

In a similar vein, policies to end the use of fossil fuels in industry and households[19] must be accompanied by a second category of policies providing clear signals on the future availability of clean fuels. This requires governments to make credible commitments to facilitate the necessary infrastructure for new fuels (both physical and institutional), which will be laid out through a series of path-nudging choices over the coming years.

First, access to energy will be determined increasingly by low-carbon sources of electricity and the fuels derived from this. Therefore, new infrastructure is essential to connect supply and demand of these energy vectors.

The signals sent by policymakers today regarding infrastructure roll-out provide a signal for private-sector investment (eg. greater electricity transmission capacity, roll-out of hydrogen transmission pipelines). We argue that bold decisions need to be taken today to stimulate a wave of new infrastructure investments.

This includes questions for policymakers outside the current comfort zone, such as: should competition concerns be temporarily ignored and should vertical integration of the generation, pipeline transportation and consumption of new green fuels be permitted, in order to allow nascent markets to grow quickly?

How can EU countries be made more cooperative and ambitious when constructing projects of common interest and transmitting clean fuels across borders? Beyond transmission-level infrastructure, there will also be a role for government support for/permitting of investments to reinforce distribution grids and final infrastructure, eg. charging for electric vehicles.

Second, energy markets are not self-organised institutions but are designed by policy. The current market design for electricity and natural gas reflects the ambition of gradually realising a European energy market by coupling

short-term markets – and expecting that these price signals will ultimately lead to coordination of energy-sector investments in different EU countries.

But so far, national instruments to support specific technologies (eg. solar in Germany; nuclear in France; gas in Italy) have superseded European market signals. The net zero transition will require a substantial rethink about how investments are coordinated to result in an energy mix that is relatively efficient.

Most attention should be given to getting right the electricity market design and sector rules, as electricity will in any scenario be the most important future clean-energy fuel. But rules for other fuels also require a rethink. For natural gas, the main question is how to manage the phase-down with as little disruption as possible (eg. no uncontrolled death spirals of decreasing use and higher per-unit infrastructure cost).

Meanwhile emerging fuels such as hydrogen, which has historically been treated as a chemical input product, will have to be re-considered as a fuel.

Finally, political decisions, particularly on country-level agreements with third countries for the future import of green fuels, act as commitment devices. Signing such agreements sends a message that a government believes in a particular green fuel and is prepared over the coming years to back it through the different stages of production (or import), transport and consumption.

For example, Germany has signed a number of bilateral deals to import green fuels[20]. The volume of agreements suggests that Germany intends to emphasise imports in its future fuel mix. Choices will have to be made on the extent of the value chain exported.

Importing green hydrogen implies off-shoring the stages of electricity generation and electrolysis, while importing green ammonia or synthetic hydrocarbons implies off-shoring another stage of the value chain. Fuels that are the subject of political agreements are therefore revealing of the political perspective on the future domestic energy infrastructure.

4 Enhancing the transition toolbox

As Europe decarbonises, lessons must be learned to provide guidance to the later stages of European decarbonisation and also to third-countries that want to follow Europe's path.

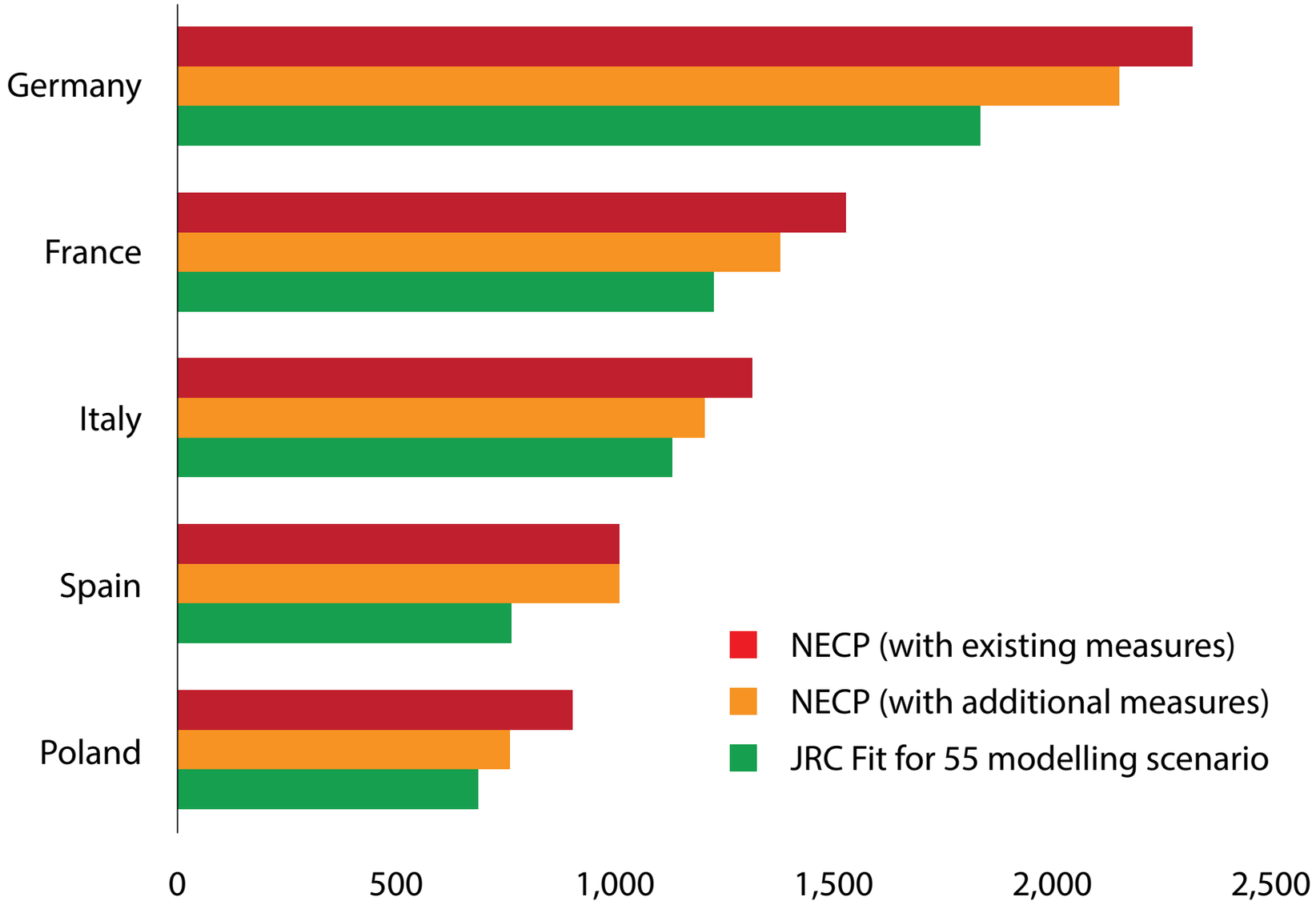
As a bloc of 27 countries with different geographies, economies and politics, there is likely to be significant divergence in the pathways EU countries follow to reach net zero. While coherence and collaboration in certain areas are important for efficient investments, in certain areas a diversity of approach should be celebrated.

The pursuing of different policies, and ultimately fuel mixes, by EU countries will provide important data on the pros and cons of respective pathways.

However, country-level plans must conform to minimum levels of ambition. So far, EU countries' national energy and climate plans (NECPs) are insufficient as net zero pathways. For example, Figure 9 shows that NECPs consistently miss required energy efficiency gains.

Member states that will fall short in terms of energy efficiency gains must demonstrate that they are able to make up for this shortcoming with alternative policy, eg. more rapid deployment of renewable capacity.

Figure 9. Final energy consumption projections in 2030 (TWh), selected countries



Source: Zachmann et al (2021).

Finally, efforts should be made at EU and member-state level to improve the collection and transparent communication of relevant data. Currently, NECPs are difficult to compare and not structured coherently.

The European Union should consider creating a European Energy Agency (similar to the United States Energy Information Administration), which would be responsible for detailed analyses of NECPs and all other aspects of the EU's low-carbon energy transition.

The policies implemented over the coming years will fundamentally reshape the lives of every European citizen. A transparent reference point for the often very technical issues will be essential to ensure high quality political discussions. ■

ABOUT THE AUTHORS

Georg Zachmann is a Senior Fellow at Bruegel, Franziska Holz and Claudia Kemfert are respectively the Deputy Head of Department and Head of Department at DIW Berlin, Ben McWilliams is a Research Analyst at Bruegel, Frank Meissner, Alexander Roth and Robin Sogalla are respectively a Consultant and Researchers at DIW Berlin.

Endnotes

1. See Eurostat, 'Greenhouse gas emissions by source sector' dataset, 'energy' value. Note this includes fuel combustion for power generation, transport and industrial applications. Measured in CO_2 equivalent.

2. For simplicity's sake, by 'fuel', we mean the three energy vectors of electricity, hydrogen and synthetic methane.

3. Full details can be found in Zachmann et al (2021).

4. The JRC (2018) estimated a "realistic biogas potential" of 18 billion cubic metres in Europe, corresponding to about 5 percent of current natural gas consumption; see Scarlat et al (2018).

5. Schiebahn et al (2015) explored the costs of synthetic methane production.

6. The efficiency of the process, from renewable electricity, via hydrogen and methanation, into the energy contained in methane is about 64 percent (Schaaf et al 2014).

7. See https://ukcop26.org/cop26-presidency-outcomes-the-climate-pact/

8. To be precise, the term 'defossilisation' should be used instead of decarbonisation when describing a system with synthetic methane. Indeed, methane is a carbon-containing energy carrier. CO_2 is emitted from its combustion and CH_4 is a greenhouse gas itself, which might leak during transportation.

9. The IEA highlights this challenge when contrasting the required reductions in oil and gas investments in a net zero scenario with the required increases in clean energy and infrastructure. While the world appears on track for the former, it is markedly missing the latter (IEA, 2021).

10. While current European government subsidies are in response to high gas prices, they indicate the measures governments are willing to take in the case of high energy prices (Sgaravatti et al 2021).

11. In the EU, emissions of carbon dioxide, hydrofluorocarbons and nitrous oxide from large point-emission sources are capped and priced under the EU emissions trading system. Methane, another potent greenhouse gas emitted from coal mines and oil and gas infrastructure, needs to be limited too; see European Commission (2020b).

12. Half of the hard coal used serves as an input to industrial processes, which will be difficult to abate; however, technological alternatives are being developed.

13. This equilibrium is complex and non-linear and affected by many exogenous factors including electricity demand development, global energy market developments and public decisions to support/close other electricity generation assets, such as nuclear and renewables.
14. The 2021-2025 German coalition agreement states that the coalition wants to "accelerate" the phase-out and complete it "ideally already by 2030" (Koalitionsvertrag 2021–2025).
15. The share of electric cars in new registrations already reached 10 percent for the EU, Iceland, Norway, and the UK in 2020, and is increasing quickly, see European Environment Agency, 'New registrations of electric vehicles in Europe', 18 November 2021. The share is also above 10 percent for the global market; see Nathanial Bullard, 'Electric Vehicles Are Going to Dent Oil Demand—Eventually', Bloomberg Green, 9 December 2021.
16. For example, Flis and Deutsch (2021) explored clearly the financial benefits of heat pumps at household level.
17. Madeddu et al (2020) found that 78 percent of existing industry energy demand is electrifiable with existing technologies, while 99 percent of the demand is electrifiable with the addition of technologies currently under development.
18. The Lazard Levelized Cost of Energy Report shows significant cost-advantages for new-build solar and wind (Lazard, 2021).
19. For example, strengthening the ETS price, roll-out of second ETS/national-level carbon pricing, combustion- engine vehicle bans.
20. The European Commission in December 2021 approved Germany's H2Global plan, which mobilises €900 million for investment in green hydrogen production in non-EU countries with the intention of importing into the EU.
See https://ec.europa.eu/commission/presscorner/detail/en/ip_21_7022

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A European climate fund or a green golden rule

Zsolt Darvas argues that spending and borrowing via a non-redistributive EU climate fund or under a green golden rule would be treated the same in the EU's fiscal framework

There is a growing recognition that substantial public investment will be needed to meet the European Union's climate targets. However, it will be impossible to increase green public investment while consolidating budget deficits when EU fiscal rules are reintroduced from 2023.

In a paper for the informal meeting of EU finance ministers in September 2021, Guntram Wolff and I proposed a green golden rule to exclude any increase in net green public investment from the fiscal indicators used to measure compliance with fiscal rules.

Others, like Luis Garicano, have proposed a new European climate investment fund (akin to the loan component of the Recovery and Resilience Facility, RRF) to provide loans to finance climate change mitigation and adaptation until 2050, which would not involve direct redistribution across EU countries.

In fact, the two proposals would be equivalent in terms of project selection, implementation and treatment in fiscal indicators and fiscal rules, providing that the green golden rule is well designed to avoid 'greenwashing' and the climate investment fund does not involve redistribution.

Green golden rule

A main criticism of the green golden rule proposal is that it might lead to 'greenwashing': governments might try to reclassify spending as 'green' to exempt it from fiscal rules. But such misbehaviour would be a characteristic of an uncontrolled version of the rule that nobody proposes. To avoid greenwashing, we propose that:

1. The Council of the EU should define a specific list of climate investments eligible for the green golden rule;

1. Each country should integrate a climate public investment plan into its annual Stability/Convergence

Programme, specifying the items planned to be excluded from fiscal rules indicators according to the green golden rule;

1. The Commission would assess the plans and identify what spending can be excluded from fiscal rules, before making recommendations to the Council;

A non-redistributive EU climate fund and a well-designed green golden rule would be equivalent in terms of project selection and implementation procedures. The treatment of related spending and consequent borrowing in national fiscal indicators and in the EU's fiscal framework would be the same

1. The Council would approve (or reject) the Commission's recommendations;

1. National fiscal councils and audit offices, the European Commission, the European Court of Auditors and possibly other institutions would assess compliance with the green golden rule.

While there are some pragmatic options to mimic a green golden rule in the current EU fiscal framework, such as amending the so-called 'investment clause' and adjusting the medium-term objective for the structural balance, ultimately, elements of the 2011 Six-Pack legislation and the 2012 Treaty on Stability, Coordination and Governance (TSCG) should be revised to include a green golden rule.

An EU climate fund without direct redistribution

An EU climate fund would disburse cash to EU countries for green projects. If the fund is similar to the RRF, implementation would be practically identical to our green golden rule: the Council sets priorities, EU countries submit plans, the Commission assesses those plans, the Council approves (or rejects) them and various bodies oversee their execution.

If the fund does not involve direct redistribution, then spending and financing would count in national budget deficit and debt statistics and would thus be subject to fiscal constraints from 2023. A special decision could be made to exempt the deficits and debt related to projects financed by the fund, but this decision, and the associated legislative changes, would be the same at that needed for the green golden rule.

In explaining this I start by clarifying what no direct redistribution across EU countries means. There are two main options for this.

- The fund is financed by annual contributions without EU borrowing (like the regular EU budget): countries get back from the fund the exact amount they pay in. For example, in 2025, Germany borrows €10 billion on capital markets, pays €10 billion into the fund, receives €10 billion from the fund and spends this money on green projects.

- The fund borrows on capital markets, lends to EU countries, and later they repay the loan to the EU, which is used by the EU to repay borrowing from the market (as with RRF loans).

Because the first option appears somewhat odd, existing proposals focus on the second option. Nevertheless, both options result in the same treatment of the resulting climate spending in deficit and debt indicators and for the purposes of the fiscal rules. Another possible way of funding would be to collect new own resources for the climate fund (we'll return to this issue at the end).

Recall how spending financed by the RRF is treated for statistical purposes: in line with the European System of Accounts and a Council legal option, in September 2021, Eurostat concluded that national spending financed by RRF grants will not be included in national deficit and debt indicators, but spending financed by RRF loans will.

The justification for excluding RRF grants is that EU borrowing to finance these grants should not be counted as member-state debt because *"there is no match between the grants received from the RRF by the individual member states and the amounts that potentially will have to be repaid by each individual member state, as the two elements are calculated on the basis of different criteria"* and *"there is great uncertainty on what amount each member state will be liable for"* (paragraph 38 of the Eurostat guidance).

Thus, since there is redistribution (*"different criteria"*) and it is impossible to calculate the expected value of national liability to the repayment of EU debt in 2028-2058 (*"uncertainty"* – see my Policy Contribution on this issue), EU debt used to finance the grants constitutes only *"a contingent liability for the Union budgetary planning"*, but not a national debt (paragraph 42).

The national budget deficit is defined as the net borrowing of the government and thus spending from RRF grants does not matter for deficits: countries record a revenue (payment received from RRF) and an expenditure (national expenditure financed by the RRF), which is called *"the principle of the EU flows neutrality on the general government net lending/net borrowing"* in the statistical jargon (paragraph 28).

Thus, by blurring the liability that EU countries have for repaying the EU debt, the financing of RRF grants does not appear in national debt and deficit statistics and is thus exempt from EU fiscal rules.

This is different for spending financed by RRF loans: Eurostat concluded that these loans should be recorded as national debt and thus expenditure financed by that debt increases national budget deficits (paragraphs 43-45 of the Eurostat guidance). So, spending financed by RRF loans is not exempt from fiscal rules.

An EU climate fund would be recorded in the same way as the RRF.

The 2015 treatment of national contributions to the European Fund for Strategic Investments (EFSI) would not apply to an EU climate fund. In 2015, the Commission noted that *"Two aspects need to be distinguished here: i) whether these contributions are recorded statistically as deficit and/or debt, in line with the established definitions of the European System of Account (ESA); and ii) the way in which the Commission will take account of such contributions in its assessment of compliance with the Pact."*

How contributions are recorded is left to the independent Eurostat, though the Commission suggested that if a country borrows to fund the contribution, this will increase government debt. This in turn increases the budget deficit.

For the compliance assessment, the Commission decided that the initial contributions to EFSI are one-off measures, and thus they will not be accounted for in the structural balance (because, by definition, the structural balance does not include exceptional one-off measures).

The Commission also noted that an excessive deficit procedure would not be launched if non-compliance with the 3% deficit criterion results only from EFSI contributions, if the excess over the 3% reference value is small and is expected to be temporary, in line with Treaty provisions.

A similar conclusion was reached for non-respect of the debt criterion. The regular national co-financing of projects also co-financed by EFSI is to be included in the structural balance, but such national co-financing could be considered for the so-called 'investment clause', which allows temporary deviations from the medium-term objective for the structural balance, or from the adjustment path toward it, for a temporary period under rather strict conditions (see our assessment of the investment clause in section 3.2.2. here).

A European climate fund would be in place for decades and therefore national contributions to it cannot be considered as exceptional one-off measures. In the same vein, breaching the 3% deficit threshold would not be temporary if it lasts for decades. The investment clause could potentially be considered for expenditures financed by the EU climate fund, but in its 2015 approved form, the investment clause is based on very strict conditions that probably no country would meet after 2023.

Furthermore, the allowed maximum initial 0.5% of GDP temporary deviation, which should be corrected in four years, would be too tiny to make a difference. The investment clause could theoretically be revised by a Commission Communication, yet the Commission already struggled to find a legal base for this narrow investment clause in 2015.

Exempting green public spending from the structural balance for decades might not be possible under the current legal framework. Yet if a creative legal interpretation can be found, it could apply to spending via both an EU climate fund and a green golden rule.

Thus, our proposed green golden rule and an EU climate investment fund without direct redistribution would be equivalent in terms of project selection and implementation, and in terms of treatment in fiscal indicators and in the fiscal framework.

EU borrowing would make a difference

As with RRF loans, EU countries jointly guarantee the repayment of EU debt so the EU can borrow at a lower interest rate than more than half of its member states.

Since the EU lends to its members at its actual borrowing cost, some could cut interest payments by borrowing from the EU instead of borrowing from the market. By underwriting EU borrowing, more creditworthy EU countries implicitly subsidise those countries that borrow from the EU, by running the risk of that they default on their liability to the EU.

This risk is probably not high, not least because no EU country has ever defaulted on an EU liability and the share of EU climate fund related debt would be small compared with total national debt. But nevertheless there is a risk.

An EU climate fund offering only loans might not incur significant demand. First, some EU countries can borrow at a cheaper rate than the EU, so borrowing from the EU would lead to a financial loss. Second, demand for RRF loans was moderate: only seven countries decided to borrow from the RRF, and of these seven, only three borrowed the full available amounts. The other four only borrowed about one-third or less than what was available.

In contrast, a green golden rule could be utilised by all EU countries.

But an EU climate fund could result in positive reputational effects (demonstrating the EU's determination to act together) and beneficial financial market development resulting from more EU debt (see a nice assessment here), which would not be the case with a green golden rule.

An EU climate fund with direct redistribution

Direct redistribution via an EU climate fund would lead to different statistical treatment, especially if the fund is financed by long-term borrowing.

Like RRF grants, the different criteria used for allocating the cross-country grants from the fund and cross-country contributions to the fund, and the uncertainty about how much each country should pay into the fund in the future, would likely lead to the conclusion that expenditures financed by the fund would not constitute national deficit and debt.

Is there a rationale for redistribution? And would there be political will for that? The answer to the first question is not clear-cut. The climate is global and the marginal benefit of additional climate spending by a net-payer country could be higher in low-income countries outside of the EU than in another EU country.

On the other hand, fostering the achievement of EU climate goals, which could also strengthen EU climate leadership, and making fiscally weaker EU countries more fiscally sustainable would be positives for the EU. Highly-indebted EU countries might not be able to finance the necessary public climate investment. Furthermore, climate is a systemic risk that has asymmetric effects on EU countries.

The second question is political, and I do not wish to speculate on it.

Nevertheless, if the goals are to limit redistribution, exclude climate spending from fiscal rules and avoid changing fiscal-rule legislation, a trick would be to design a climate fund so it involves only 'little' redistribution.

For example, the criteria for allocating the grants from the fund would primarily depend on GNI, but would include other indicators as well. The future repayment of the resulting EU debt would depend only on GNI.

Thus, there would not be a direct match between the grants received from the climate fund by individual countries and the amounts that potentially will have to be repaid by each individual member state, so Eurostat might conclude that the consequent EU borrowing should not be counted in national debts and deficits.

An EU climate fund financed by new own resources

I make two observations for this option. First, it is already hard to find new own resources for the regular EU budget and Next Generation EU.

Second, a new own resource for the EU budget implies that the same revenue does not accrue to national budgets, thus increasing national budget deficits.

For example, if the revenues from the European Commission's plan to redirect to the EU some of the reallocated taxes from the world's largest companies and some of the revenues from the EU emissions trading system, then member states will not receive these tax revenues. Thus, national budget deficits are going to be larger, all else being equal.

The only exceptions are resources countries cannot levy, like the proposed carbon border adjustment, but it's unlikely that such a source would provide a sizeable contribution to an EU climate fund.

Summary

A non-redistributive EU climate fund and a well-designed green golden rule would be equivalent in terms of project selection and implementation procedures. The treatment of related spending and consequent borrowing in national fiscal indicators and in the EU's fiscal framework would be the same.

New regulations would be needed to set up both the climate fund and the green golden rule. Special legislation would be needed to exempt the subsequent climate expenditures from EU fiscal rules in both cases.

The main difference would be that an EU climate fund financed by EU borrowing would create an indirect subsidy going from more creditworthy to less creditworthy countries in the form of reduced interest costs, due to the joint guarantee of EU borrowing.

A new climate fund and EU borrowing might bring positive reputational effects and benefits for financial market development. The demand for loans from an EU climate fund could be low, while a green golden rule could be applied by all EU countries.

A climate fund financed by EU borrowing with redistributive effects across countries would likely result in the exclusion of the fund's activities from national fiscal indicators and EU fiscal rules. ■

Zsolt Darvas is a Senior Fellow at Bruegel

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A classical liberal approach to inequality and inheritance

Is inequality a problem? Patrick van Schie and Mark van de Velde look at whether equality is actually a core value to liberals

Inequality is growing. This is increasingly what is being said in the media and as part of the wider public debate. Generally, this is followed up with the idea (implicit or not) that something needs to be done about it and preferably by the public authorities.

Can liberals (classical or otherwise) shrug their shoulders in response to this or should they be concerned about such inequality (averred or not)? Sometimes the response is to downplay inequality and to dispute that it is on the increase. This is also commendable in so far as the claims of inequality (whether growing or not) are incorrect.

Neither the views that are trumpeted loudest nor juggling with figures may disturb our view of the actual situation. At the very least, any political approach designed to reduce inequality would need to be based on the appropriate facts.

Yet liberals would do well to do more than cry, 'It's not that bad'. Even if we agree (with others) on the facts, we need to question whether inequality is actually a problem. Is equality actually a core value to liberals?

A spectre of completely equal people

In 1891 the German liberal leader, Eugen Richter, published a novel called *A Social-democratic Vision of the Future*. In it he seriously considered statements made by contemporary socialist leaders about their equality ideals and he described their implications.

If the socialist ideals that had been proclaimed were to be implemented, no one would be permitted to earn more than anyone else, no one would be allowed to possess more than anyone else – savings would be prohibited in order to achieve this – no one would be permitted to live more expansively or to eat more copiously than anyone else – consequently, it would be mandatory for people to eat in soup kitchens – and so forth.

A sombre, joyless society was the outcome, one in which a constantly expanding police force checked whether everyone was towing the line. Protest was suppressed and one was prohibited from leaving the socialist utopia.

Nowadays, we recognise this as the 'actually existing socialism' in the former German Democratic Republic (GDR) or any other communist dictatorship. As such, the liberal Eugen Richter predicted the unpleasant features of a society in which all are treated equally more than half a century before the GDR was established.

[We believe in] a relationship-neutral inheritance tax which gives heirs an equal tax treatment and allows the testator to choose how he or she wishes to distribute the inheritance, without government interference

Nowadays, social democrats and many others on the left would not countenance such a form of equality enforced in every respect. Nevertheless, Richter's novel clearly shows that such overall equality does not create an idealistic world but a horrific one.

Although few people on the left would still want to make everything completely equal, they would like to see numerous issues become *more equal* in many respects. If there is inequality in relation to income and wealth, they demand levelling.

They would prefer to even out any differences in levels of education through comprehensive school structures. Where men and women engage in different occupations and professions, they are quick to say that discrimination abounds.

And so it goes. Put in a nutshell, while socialists want greater equality, liberals prefer more freedom. However, this does not mean that liberals reject *all types* of equality.

Equality as part of the liberal approach

To liberals, the individual comes first. An individual must be afforded an opportunity to make their own choices in life. In order to do so, it must also be possible for them to make such choices. This is called autonomy. Freedom and autonomy are essential starting points for liberals.

Every individual is entitled to freedom. No individual may claim greater freedom than another. Put another way, in a liberal society everyone has an *equal* right to freedom.

The government must intervene (or be able to do so), if one person's freedom occurs at the expense of another, irrespective of who the latter is. Every person is equal before the law. As such, liberals want *equality under the law*.

As long as the fundamental rule is observed that every person should be able to avail himself of his freedom, the public authorities need to act with restraint. Nevertheless, almost all liberals feel that some important or at any rate essential matters cannot be left to the individual or collaborative enterprises of individuals (associations, foundations, companies and so forth).

Liberals also look to the public authorities when it comes to ensuring safety, establishing infrastructure or providing basic education and the most essential healthcare. In so far as collective decision-making is necessary or inevitable, in principle, they would like all people to be able to influence it in equal measure. As such, liberals also stand for *political equality*.

When it comes to education, we are also touching on an important part of a third aspect of the liberal approach: *equal opportunity*. Where your cradle once stood, should not matter when considering the extent of your potential self-development.

It is not the individual's origins which matter to liberals but their future. The rules differ in what they consider to be required in relation to equal opportunity.

Nevertheless, they will never automatically conclude that there was never any question of equal opportunity merely based on the existence of specific forms of actual inequality. Yet this occurs all too often in the public debate concerning inequality.

Celebrate diversity

The idea that every individual is unique is an important principle to liberals. This does not mean that we do not share common features, nor does it entail that in practice people sometimes – to reflect the statistics – have a tendency to make similar decisions in identical situations.

Even so, no single individual, and this also applies to identical twins, is entirely identical to another. Neither is every situation in one person's life always identical to that in another's.

Individuals differ in terms of their personality, interests, preferences and talents, and in their need or willingness to make an effort, to take risks or to remain calm. Given the freedom to do so, they therefore make very different choices which could logically lead to highly diverse outcomes.

Sometimes luck plays a role in this respect although similarly we – as liberals at any rate – do not begrudge someone the fortune of winning a jackpot in a lottery or the benefits of a coincidental discovery which is cleverly marketed in the same way that we would not find it appropriate for a goal to be disallowed because the ball coincidently landed in a fortuitous manner before the feet of the goalscorer.

In addition, life is not a competition and it is far from certain that success – luck – can only be measured according to the extent to which someone is well heeled.

One person may pursue success through a generously salaried career in a bustling cosmopolitan environment, while another may opt for the peace and space of an outlying area, where life is less hectic and nature is closer at hand.

People are not identical in this respect either, fortunately so. After all, a person is not a number, not a statistical item but a creature of flesh and blood.

Liberals feel that people should be able to develop their potential based on their own aptitude and interests. This produces a pluriform society, the result of acknowledging the unique nature of every individual.

'Correcting' such outcomes, which seeks to eliminate or reduce inequality, amounts to an affront to the dignity of the individual. Brushing away inequality which has arisen due to the different decisions that free people have made is only possible by depriving them of their liberty.

Indeed, it is then that a liberal will opt for freedom rather than equality. No person is identical to another. It is for this reason that we liberals do not deplore and combat such forms of inequality but celebrate them instead.

We concur with Friedrich Hayek (1899-1992) when he says, *"If the result of individual liberty did not demonstrate that some manners of living are more successful than others, much of the case for it would vanish."*

Financial autonomy versus equality of opportunity

It should be acknowledged that some people do not owe their socio-economic position to their own success in life but to that of their parents. Through an inheritance they benefit, without having provided any substantial service, from the dexterity, luck or thrift of the previous generation.

Liberals are traditionally divided as to how desirable this is. On the one hand, it is perfectly natural for parents to want to give their children the best possible start in life, but on the other hand, some children are given an undeserved advantage that is at odds with the ideal of equality of opportunity.

Anyone who had hoped that the left-wing economist Thomas Piketty would have something original to say about this dilemma in his weighty tomes, *Capital in the Twenty-First Century* and *Capital and Ideology*, will be severely disappointed. Piketty worries that inheritances will further exacerbate what he sees as the already excessive wealth inequality and therefore advocated higher inheritance taxes.

However, in most European countries there is no single inheritance tax but rather a complex system with all sorts of rates and exemptions. The essence of such a system is that the further an heir is distanced from a testator, the more they will pay in the way of inheritance tax.

In Piketty's own France, for example, children pay exceptionally little inheritance tax, whereas unrelated heirs (a good friend, for instance) are immediately required to remit 60% to the tax office. Although the differences are less extreme in the Netherlands, there too a friend or acquaintance pays three to five times more inheritance tax than a child.

Are inheritances deserved?

This progression based on kinship is at odds with the most important justification for inheritance tax, which says that if a person is required to pay tax on the financial fruits of their labour, it is perfectly reasonable to require children to pay tax on wealth accumulated by their parents. After all, it is not the child's merit to have a wealthy parent.

Nevertheless, in many countries children are automatically entitled to a certain part of the inheritance and, as mentioned, at a far more favourable rate than those who are not children. There is the rub because, if there is a single category of heirs who can definitely be said to have deserved their inheritance, then it is those heirs who are not related to the testator.

For why would a testator want to leave all or some of their assets to someone who in genetical terms is an utter stranger? Apparently, such an unrelated person has shown themself to be somehow deserving in the eyes of the testator.

The testator needs to take action (draw up a will) to ensure that such a deserving person obtains an inheritance. On the other hand, parents need not do anything to ensure that their children inherit.

Their estate automatically goes to their offspring upon their death by operation of the law. The fact that unrelated heirs must nevertheless pay much more in the way of inheritance tax is extremely questionable from a liberal perspective.

In his books Piketty constantly casts doubt as to whether someone has actually deserved their wealth in moral terms. For example, in an aggrieved tone he writes that the late Steve Jobs' wealth amounted to one sixth of that of Bill Gates, although Apple's products are considerably more innovative than those of Microsoft, according to those in the know.

Whether he is right in this respect is another matter, but you would expect someone as obsessed with inequality and earnings as Piketty to denounce the tax discrimination against unrelated heirs. Yet he remains completely silent on this matter.

Given a tax rate of 60% in the case of friends and acquaintances, Piketty can probably not imagine any Frenchman wanting to leave money to a person who is not a member of his family, although it would have been to his credit if he had stopped to put himself in the shoes of the growing elderly population without children.

Considering the fact that inheritances for unrelated heirs automatically involve merit – from the testator's perspective, at least – one could even argue that it is precisely this category of heirs that should actually pay less tax than heirs who are related to the testator by blood.

However, such a system would suffer from exactly the same shortcoming as the current systems in Europe, namely, that the government tries to steer people's financial planning through rates and exemptions. Whether someone wishes to leave something for their children or for a caring girl in the neighbourhood ought to be a personal decision. And the government should *certainly not judge* whether an inheritance is deserved or not.

It is for this reason that we are pleading for a relationship-neutral inheritance tax which gives heirs an equal tax treatment and allows the testator to choose how he or she wishes to distribute the inheritance, without government interference. Many testators would probably still want their children to inherit, but friends or acquaintances who inherit would no longer be disadvantaged.

An interesting side effect could be a reduction in wealth inequality. After all, if inheritance taxes were to become relationship-neutral, the incentive to retain wealth within the family would disappear. This should be music to Piketty's ears.■

Patrick van Schie and Mark van de Velde are respectively the Director and a former Fellow of TeldersStichting, the Netherlands' liberal think tank