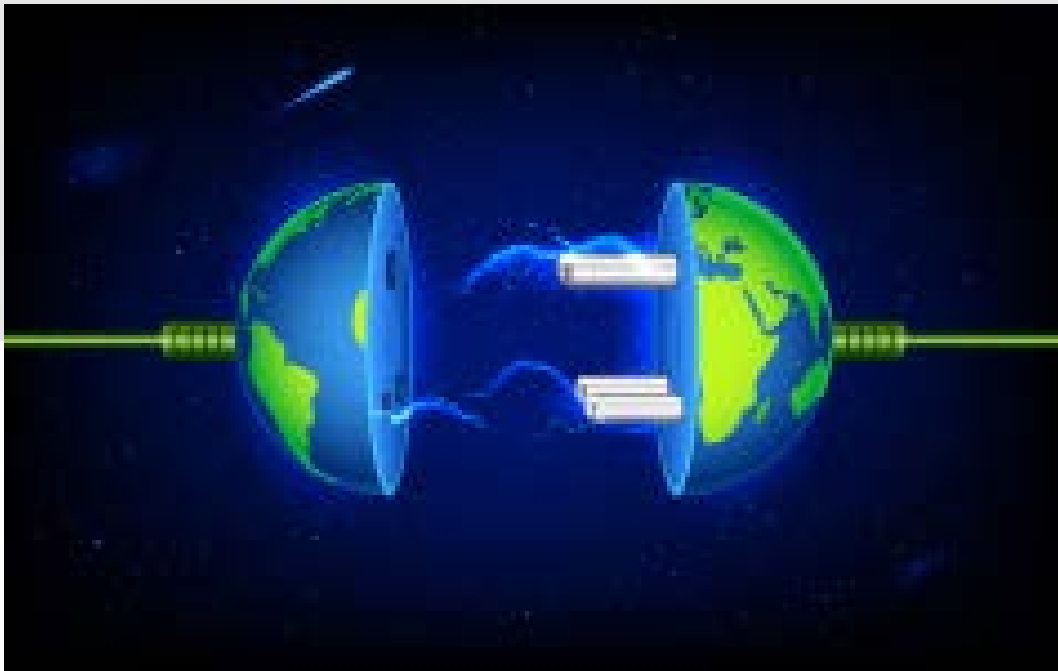


The EU Green Deal in a volatile world

By Camille Defard, Jacques Delors Energy Center



Source: Vectormart/
Depositphotos

The EU ambition to be the first region in the world to be emission free is not only an issue of political will but also of economic capability and outlook to get there. EU's energy dependency had a substantial impact on its competitiveness globally and this has only increased with the war in Ukraine. Camille Defard is Head of the Jacques Delors Energy Center and Research Fellow in EU Energy Policy. In this article, she analyses the geo-economic challenges, be it from the East or the West, the European Union faces in its energy transition ambitions and which aspects the EU needs to address to successfully navigate towards decarbonisation without losing its economic edge.

Clearer goals but bumpier road

“Without an active energy policy, the European Union will not be able to free itself from its increasing energy dependence”, the European Commission stated as early as 2000 in [one of its green papers](#). Already back then, the link was clear between energy security, competitiveness, and the green transition away from (mostly imported) fossil fuels. In the view of the Commission, meeting these common challenges also meant more coordinated EU action.

Since 2000, EU energy policy has achieved great progress, becoming increasingly ambitious and integrated. This trend is well-illustrated by the launch of the EU Green Deal in December 2019, which aims at achieving climate neutrality by 2050. But since then, geo-economics and geopolitics have dramatically changed, with COVID-19 and the war in Ukraine worsening the EU energy crisis. The transition to net-zero emissions is now, more than ever, the obvious remedy to the fossil energy price crisis, but the road has also become bumpier. Is the EU fit to handle energy crises and to move towards climate neutrality in an increasingly volatile world?

Below I first set the scene of the EU energy transition to date, showing how climate action rose prominently in the energy security and competitiveness agendas. Then I highlight the emerging geo-economic challenges and conclude with an assessment of political answers.

The EU Green Deal - a resilient strategy still in its infancy

Achieving climate neutrality requires doubling the current pace of emission reductions¹. Between 2005 and 2020, EU emissions decreased by over one quarter, the share of

1 See Le Quéré, C. e.a., [Drivers of declining CO2 emissions in 18 developed economies](#), in : Nature Climate Change volume 9, pages213–217 (2019).

renewables more than doubled from 10 to 22%, and primary energy consumption decreased by 17,5%² (). While these are positive results, current policies would only lead to a 60% reduction in emissions by 2050.

To implement the EU Green Deal, the EU engaged in a regulatory overhaul. It adopted its first climate law in 2021, setting itself binding emission reduction targets of -55% by 2030, as compared to 1990 (instead of -40% previously), and net-zero by 2050. The European Commission proposed a new climate and energy package, 'Fit-for-55', which aims at aligning the energy regulatory framework with the strengthened 2030 objective. It will address a wide range of issues, including banning the sale of new thermal cars by 2035, increasing energy efficiency and renewable targets, and strengthening the EU carbon price signal. Finally, a carbon price for imported goods from third countries, the Carbon Border Adjustment Mechanism (CBAM), should be introduced on some imported high carbon-intensity products such as steel and hydrogen. This instrument would be the first of its kind and aims at preventing 'carbon leakage' and at incentivizing EU trade partners to decarbonize their energy supply.

So far, the crises have only strengthened the EU Green Deal. When the COVID pandemic struck Europe, EU leaders managed to set their disagreements aside to come up with a historic common response, breaking the taboo of common borrowing and safeguarding the EU Green Deal as a key answer for recovery. 40% of the EU recovery funds – the Recovery and Resilience Facility - have been directed to [climate investment](#), out of a total envelope of €720 billion to be spent by 2026. The REPowerEU plan to phase-out Russian gas dependency proposes to increase renewable and energy efficiency targets in the frame of the Fit-for-55 package, to accelerate renewable energy project permitting, and to establish a common demand reduction plan.

The EU Green Deal confirms the EU as a global front runner with regards to green transition ambitions. While the US and China introduced flexibility in their climate targets, the EU now has binding emission targets, and is strengthening binding laws with the Fit-for-55 package. On paper, it could be well placed to have a first-mover advantage³.

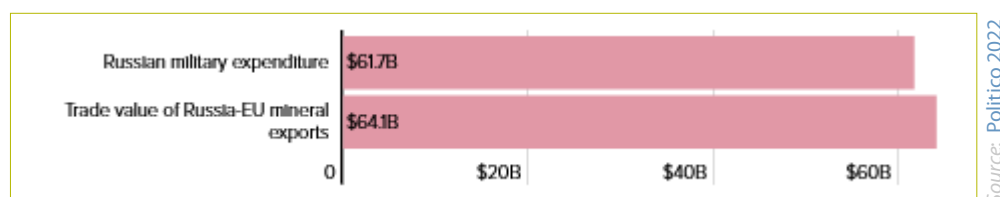
But fulfilling this potential requires to address the issue of energy dependency while maintaining EU competitiveness in a time of uncertain supply chains. While the long-term benefits of a low carbon economy are clear, short-term transition costs are likely to be significant, involving major shifts in growth patterns, an investment boom and reduction of consumption with potentially large distributional effects⁴.

Climate action is now a prominent matter of energy security and competitiveness

Dependency on imported fossil fuels (oil, gas and coal) is one of the EU's greatest *vulnerabilities*. According to [Eurostat](#), fossil fuels represented close to 60% of the energy consumed in the EU in 2020. Before Russia invaded Ukraine in February 2022, Russia stood out as EU's main supplier, with around 30% of EU imported oil, 45% of gas and 55% of solid fuels.

With such massive energy purchases from Russia, the EU indirectly contributed to funding the war in Ukraine (see **Figure 1**). However, sanctions and shifts in energy imports should start damaging Russian public finances this year⁵).

Figure 1 - Trade value of Russian exports of fossil fuels to the EU compared to Russian military expenditure in 2020

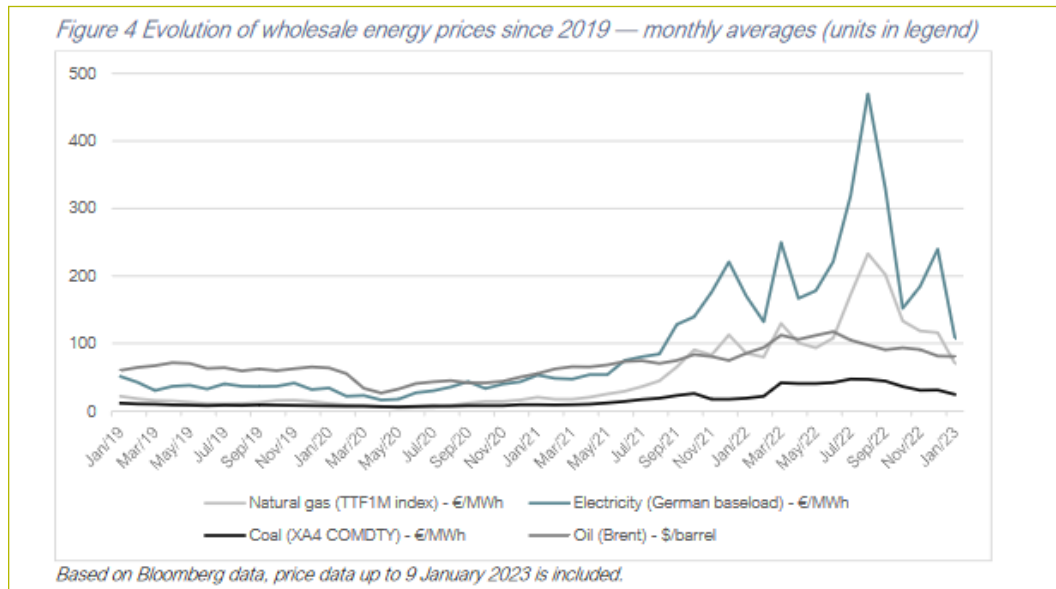


Source: Politico 2022

- 2 See [European Scientific Board on Climate Change letter of 7 February 2023](#) to Council, European Parliament and European Commission.
- 3 Derdevet, M. and Pèlerin, C., *Dans l'urgence climatique - Penser la transition énergétique*, 2022.
- 4 Pisani-Ferry, F., *Climate policy is macroeconomic policy, and the implications will be significant*, in: Policy Briefs 21-20 (2021).
- 5 See [Politico](#), 9 January 2023.

Besides, the EU's dependence of fossil fuel imports allowed Russia to use energy as a weapon, reducing gas flows to Europe by 80% over the course of 2022, hence fueling an energy price crisis. EU wholesale gas and electricity prices rose by up to ten times in 2022 compared to historical averages⁶ (see **Figure 2**). This led to sharp increases in retail prices for households and businesses, raising concerns over cost-of-living, competitiveness and deindustrialization⁷.

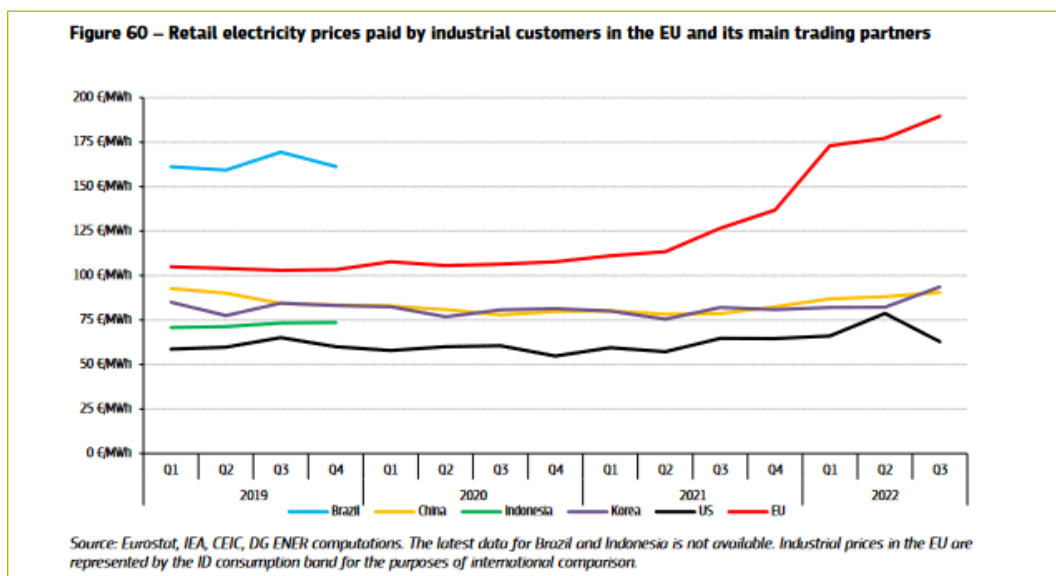
Figure 2 – Evolution of wholesale energy prices since 2019 – monthly averages



Note: units in legend. Source: [European Scientific Advisory Board on Climate Change 2023](#)

Since the era of cheap fossil fuels might well be behind us (EC 2023 [GDIP](#)), climate action becomes a prominent matter of competitiveness for the EU. The EU now has the highest energy prices in the world. Retail electricity prices in the EU were about twice as high as in China or the US (see **Figure 3**). Thanks to a mild 2022/2023 winter, energy savings and industrial production curtailments, gas storage levels are higher than expected ([Bruegel 2023](#), [ESABCC 2023](#)). The pressure on energy prices has receded markedly since December 2022, but the gas crisis is not over.

Figure 3 – Retail electricity prices paid by industrial customers in the EU and its main trading partners



Source: EC 2023, [Quarterly report on EU electricity markets Q3 2022](#)

6 See [Trading Economics](#) (2022) and [Ember](#) (2023).

7 See [European Scientific Board on Climate Change letter](#) of 7 February 2023 to Council, European Parliament and European Commission.

Climate action is now energy security action. The EU replaced Russian gas mainly with LNG imports, and remains vulnerable to international market dynamics. 30 billion cubic meters of gas⁸ could be missing for next winter. LNG supply could be tighter due to Chinese re-opening after a long period of lockdowns. The International Energy Agency therefore recommends to accelerate improvements in energy efficiency, deployment of renewables and electrification of heat, as well as cutting on excess consumption with sufficiency measures⁹.

Geo-economical challenges to the EU Green Deal

Clean energy policies are increasingly taking center stage in geopolitics and international balance of power. Securing access to raw materials for clean technology is now as strategic as oil and gas in the 20th century. China has a quasi-monopoly on rare earth processing and permanent magnets required to manufacture windmills and batteries¹⁰. In early 2023, it proposed to introduce export licensing requirements on solar PV wafers, which could act like an export restriction¹¹. If it materializes, it might hinder the acceleration of PV deployment in the EU.

The US Inflation Reduction Act (IRA) is the last plot twist in the growing US-China rivalry and mounting concern over supply chains for the clean transition. As such, the announcement of an ambitious clean subsidy plan on the other side of the Atlantic is good news for the climate fight¹². The only issue for Europeans is that the law passed by the US in August 2022 introduces domestic content ('Buy American') conditions.

The IRA revived fears of EU deindustrialization to the profit of the US, a business trend further amplified by the high energy prices in the EU. While it remains to be seen whether this strategy can work and compensate for the decades of Chinese investment to become a processing hub¹³ ([Goldthau, Tagliapietra 2022](#))¹⁴, the IRA may well hurt the EU¹⁵.

The US still lags way behind China and, to a lesser extent, Europe. China invested four times more than the US in the clean transition in 2022 (USD 546 billion)¹⁶. China is also the global leader in clean tech manufacturing, but the EU remains a larger producer of wind energy component and batteries than the US¹⁷. However, China has been subsidizing its industries at levels twice as high as the EU relative to GDP¹⁸. Around 90% of mass-manufacturing capacity for several key clean energy technologies is concentrated in China and the Asia Pacific region (see **Figure 4**)¹⁹.

8 Equivalent to 7,5% of EU gas consumption.

9 International Energy Agency, [How to Avoid Gas Shortages in the European Union in 2023](#), December 2022.

10 International Energy Agency, [How to Avoid Gas Shortages in the European Union in 2023](#), December 2022. [European Commission communication](#), 14 September 2022.

11 [New York Folk](#), 31 January 2023.

12 Interestingly, Republican states top the ranking of the states that secured the most climate investments. If US Republicans soon represent employers of clean energy technology, it could dramatically change the balance of power in global climate policy

13 Goldthau, A., and Tagliapietra, S., [Energy crisis: five questions that must be answered in 2023](#), Nature, 16 December 2022.

14 Besides, the US now faces bottlenecks with worker and permitting ([Financial Times 2023](#)).

15 While IRA funding looks smaller than the EU RRF, the US tax credits are uncapped, meaning that the USD 370 billion value over ten years is hypothetical. It could amount to twice this amount in public subsidies, and to USD 1 700 billion when taking into account private investment ([Financial Times 2023](#)).

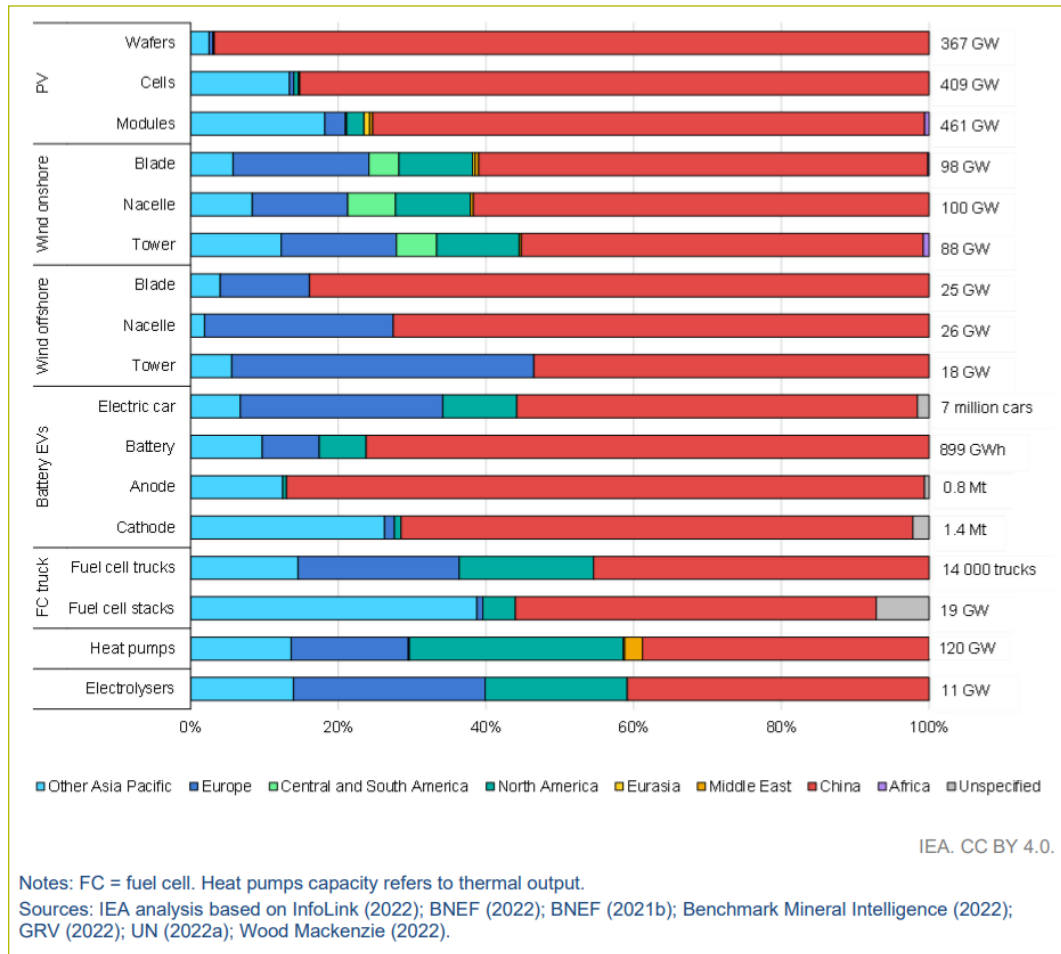
16 [Financial Times](#), 2023.

17 International Energy Agency, [Energy Technology Perspective 2023](#), January 2023.

18 European Commission, [A Green Deal Industrial Plan for the Net-Zero Age](#) (Com (2023) 62 final), 1 February 2023.

19 International Energy Agency, [Energy Technology Perspective 2023](#), January 2023, page 96.

Figure 4 – Regional shares of manufacturing capacity for selected mass-manufactured clean energy technologies and components, 2021



Source: IEA 2023

EU answers and policy assessment

EU emergency answers and longer-term policies show that, even in the face of ‘perfect storms’, EU leaders valued greater EU unity, coordination and solidarity. EU Member States finished 2022 more interdependent than when they started²⁰ the year, and the EU electricity market displayed its strength in ensuring solidarity without diplomatic drama²¹. The crisis also marks a turning point in EU policy with a more interventionist approach to energy markets and international energy trade²², one example being the establishment of joint gas purchasing. The key policy debate is now on how to calibrate the degree of EU integration and interventionism needed to overcome current and future energy challenges.

In spring 2023, a regulatory package should address the joint challenge of industry competitiveness and supply chains security for the clean transition, with a Net Zero Industry Act that should be aiming at facilitating investments and accelerating permitting processes in key sectors²³ for the greening of EU industry. In addition, this package aims to contain a Critical Raw Materials Act to improve secure and sustainable access, as well as to facilitate their extraction, processing and recycling. To avoid a mining boom, the circular economy must be strengthened. Only 12% of materials used in EU industry comes from recycling²⁴. The recently adopted revision of the EU battery

20 With the completion of new interconnectors between Poland and Slovakia, or Bulgaria and Greece, as well as the new reverse gas flows between France and Germany.
 21 Glachant, J.-M., *Reforming the EU internal electricity market in the middle of a huge energy crisis: an absolute short-term emergency or preparation for the future?*, Working Paper, EUI RSC, 2023/03.
 22 Goldthau, A., and Sitter, N., *Whither the Liberal European Union Energy Model? The Public Policy Consequences of Russia’s Weaponization of Energy*, in: EconPol Forum 23 (6), 4-7, 2022.
 23 Batteries, windmills, heat pumps, solar, electrolysers, CCS.
 24 European Commission, *The European Green Deal* (Com (2019) 640 final), 2019.

regulation could be an inspiration in that respect, as well as a game changer for battery production because it covers life-cycle emissions, includes use of recycled materials targets, and asks imported products to comply with export requirements²⁵. Lastly, a reform of the EU electricity market design is also planned. The aim is to better shield consumer bills from short-term fossil fuel prices variations and to enhance incentives for renewable deployment. However, it should not dramatically impact the root cause of the crisis in the absence of further industrial processes electrification.

Answering mounting geo-economical challenges comes at a difficult time for public investment in Europe. Due to the energy price crisis, massive national public funding was provided for energy bills support over 2021/2022, for a total amount of over €600 billion²⁶. It now endangers the viability of public finances together with Member States' capacities to invest in the green transition, in a context of ECB's rising interest rates. National answers and the loosening of State Aid rules trigger fears of further single market fragmentation. Meanwhile, about €300 billion of recovery funds remain to be spent in the next three years²⁷, and the dire question of the EU budget new Own Resources – needed to reimburse the common EU borrowing – is still pending political agreement. In this context, advocates of new borrowing still have a long way to go to convince the 'frugals', while less industrialized Member States such as Spain and Ireland see no advantage for themselves in a great EU clean industry investment plan. In this context, there is still a lot of uncertainty on a possible agreement on the draft EU Sovereignty Fund proposed by the Commission.

The answer to IRA unveils the imbalance in the EU's institutional development. On the one hand, it has a powerful judicial system and an extensive body of law. On the other hand, it lacks fiscal, administrative and coercive capacity required to complement its regulatory powers²⁸. The IRA raises the question of the EU fiscal capacity's adequacy to the common challenges we face.

A Sovereignty Fund may have to go beyond the narrow narrative of energy-intensive industries to include housing and mobility decarbonization²⁹ investments³⁰ that would appeal to less industrialized Member States, while also contributing to create new markets for clean technologies such as heat pumps and batteries. The EU also needs a clear outlook of common future investment needs and could improve long-term planning tools such as the National Energy and Climate Plans (NECPs).

Some of the emergency measures should be integrated in regular EU energy policy, such as demand reduction targets. Given the high stakes in energy security and affordability, setting up effective monitoring and enforcement mechanisms at the EU level would be required. This comes down to a more general question of EU governance to overcome high-level political deadlocks and achieve true EU solidarity and coordination towards climate neutrality, implement ambitious regulations, and fill the democratic gap³¹ that will only widen if the EU integration is set to move forward without further EU governance changes.

25 Hermine, J.-P., [European battery regulation: an exemplary step forward in more ways than one](#), IDDRI, 12 January 2023.

26 Sgaravatti, G., Tagliapietra, S., Trasi, C., and Zachmann, G., [National fiscal policy responses to the energy crisis](#), Breugel, 13 February 2023.

27 Although a major difference with the US is that remaining funds consists of loans and not subsidies, firms and households do not have direct access to RRF funds.

28 Kelemen, R.D. McNamara, K., [State-building and the European Union: Markets, War, and Europe's Uneven Political Development](#), in: *Comparative Political Studies* 2021, Vol. 0(0) 1–29.

29 Reducing energy demand in all sectors will also contribute to industry competitiveness by reducing price pressures on a limited supply.

30 Some estimates that almost three quarter to public investment needs concern the building and transport sector, see *Greening Europe – 2022 European public investment outlook*, [Baccianti 2022](#).

31 McNamara, K., and Musgrave, P., [Democracy and Collective Identity in the EU and the USA](#), in *Journal of Common Market Studies* 12978, 2020, page 1-17.